

Maine Atlantic Salmon Commission

Atlantic Salmon Conservation Plan For Seven Maine Rivers

2000 Annual Progress Report



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Acknowledgements

The following organizations submitted reports to the Land & Water Resources Council for use in developing this progress report:

Atlantic Salmon Federation – Maine Council
Cherryfield Foods Inc.
Downeast Rivers Coalition
Ducktrap Coalition
Knox/Lincoln County Soil & Water Conservation District
Maine Atlantic Salmon Commission
Maine Dept. of Inland Fisheries & Wildlife
Maine State Planning Office
Maine Department of Environmental Protection
Maine Department of Agriculture, Food, and Rural Resources
Maine Department of Transportation
Maine Department of Conservation
Maine Department of Marine Resources
Maine Wild Blueberry Commission
USDA Natural Resource Conservation Service
Project SHARE
Sheepscot River Watershed Council
University of Maine Cooperative Extension Service
US Fish & Wildlife Service
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I. Introduction

Calendar year 2000 marked the third full year of implementation of the State of Maine's Atlantic Salmon Conservation Plan for Seven Maine Rivers (ASCP). Much of the progress achieved in 2000 is attributable to initiatives begun in 1998 and earlier. The State of Maine added several new projects designed to strengthen habitat conservation/restoration work and species recovery in the Sheepscot, Ducktrap, Narraguagus, Pleasant, Machias, East Machias, and Dennys Rivers.

This report will start by summarizing accomplishments made since the ASCP began over three years ago. Following this summary, the report will cover activities during the last year in support of the ASCP as they relate to one or more of the Plan's 14 goals. This report should not be considered a comprehensive, cumulative record of all the activities since the ASCP officially started in December 1997. The reader may want to refer to the first and second annual reports, available online at <http://www.state.me.us/asa/ascp.html>. Furthermore, there are many conservation and restoration actions that have been in place for many years prior to the ASCP. These actions will also not be catalogued here unless they directly relate to progress on the ASCP in 2000.



Information in this report came from various agencies' and organizations' annual reports on their ASCP activities. These reports comprise the body and background of this report. Their content is the responsibility of the submitting organization, not the Atlantic Salmon Commission.

II. SUMMARY OF ACCOMPLISHMENTS TO DATE

Under the direction of the Atlantic Salmon Commission with oversight by Land & Water Resources Council, the State of Maine has addressed, and is continuing to work on, threats facing Atlantic salmon populations in the seven rivers. Many organizations and individuals are responsible for the ASCP's progress to date. As designed, the strength of the program is the cooperative, collaborative approach to solving problems affecting Atlantic salmon and its habitat. Few, if any, of the accomplishments can be attributed to a single government agency, business, or non-profit conservation organization. The following is an abbreviated list of accomplishments under the ASCP's four broad categories over the last three years:

1. Fish Management

- A) Fish trapping and counting** -- important to assure maximum protection against farmed Atlantic salmon escaping into the rivers, and to have a means to assess Atlantic salmon returns and smolt out-migration.
- Designed, permitted, and constructed fish weirs on the Pleasant and Dennys Rivers. These weirs were in the water by mid-fall 1999, operating from May to November 2000, now are in winter storage, and will be back in the water this spring (2001);

- Installed and operated smolt traps on the Narraguagus and Pleasant Rivers for the second year;
- Improved the design of the fish weir for the East Machias River, negotiated a 10-year access easement with the landowner, and chose a contractor to construct and install the fish trapping facility for deployment in June 2001;
- Currently in the process of modifying the design of the Narraguagus flood control dam at Cherryfield to make the trapping facility there more effective; and
- Completed preliminary design for a fishway with trap on the Machias River Gorge.

B) Fish stocking -- implementing a long-term plan for recovery of the Atlantic salmon runs in six of the seven rivers.

- Continued river-specific fry stocking in six of the seven rivers (1999) and in five of the seven rivers in 2000, as called for in the Plan;
- Released 300+ adult Atlantic salmon into three Downeast rivers in October that were raised for this purpose by commercial aquaculture in accordance with the ASCP;
- Continued the collection of broodstock from five of the seven rivers (1999) and in six of the seven rivers in 2000, also according to the Plan; and
- Stocked adult broodstock back into their river of origin.

C) Fish assessments -- to better understand salmon populations in the rivers

- Continued a smolt study on the Narraguagus to better understand parr-to-smolt survival;
- Placed a smolt trap on the Pleasant River to measure downstream migration;
- Continued annual juvenile population assessments on specific reaches of each river; and
- Continued annual redd counts on spawning areas in each of the rivers.

2. Habitat Protection

A) Identification of habitat and habitat requirements

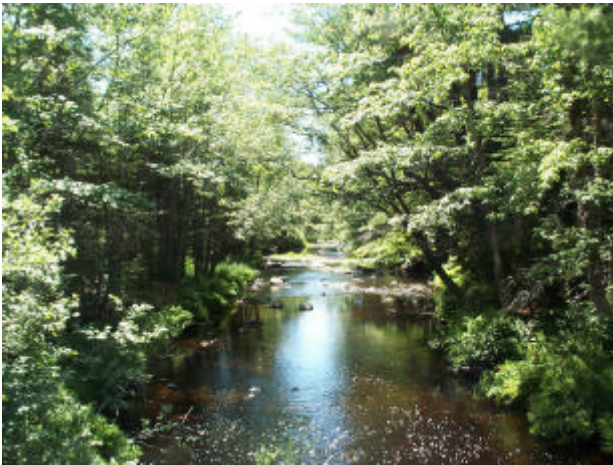
- Completed habitat mapping of critical spawning and nursery areas in each of the seven rivers and distributed the information to regulatory agencies and key landowners;
- Completed a scientifically justifiable buffer methodology (<http://www.state.me.us/asa/ascp.html>), a tool conservationists can use to establish site-

specific protective riparian buffers adjacent to important spawning and nursery habitat in cooperation with willing landowners;

- Completed modeling, using Instream Flow Incremental Methodologies (IFIMs) for the Pleasant and Narraguagus Rivers and Mopang Stream (a major tributary to the Machias River), providing information about the flow requirements of juvenile Atlantic salmon along critical reaches of each of these streams; and
- Nearing completion of water use management plans based on this modeling – a technical editor is completing the Water Use Management Plan for the three rivers – several important implementation items are underway.

B) Protection of habitat

- Acquired, assisted in the acquisition of, or in the process of acquiring 4,806 acres with more than 40 miles of frontage along five of the seven rivers. Supported and worked for passage in November 1999 of a \$50 million bond issue to recapitalize the Land for Maine's Future (LMF) Program which will make additional purchases possible. Partners developed several riparian protection projects in 2000 and have application pending before LMF for funding;



- Restricted the direct withdrawal of water during dry summer months for blueberry irrigation through permit conditions each of the last three years by the Land Use Regulation Commission (LURC). Each year, growers had to cease withdrawals during August because they reached the low flow limits;
- Captured over \$1.5 million of funding from the National Fish and Wildlife

Foundation for habitat conservation projects over the last 4 years. These funds have contributed to the purchase of riparian habitat, assisted watershed councils, restored eroding riverbanks, and assessed watershed conditions;

- Completed acquisition of one mile of important riparian habitat on the Narraguagus and set up a field station on the same property to conduct ongoing research;
- Improved the functioning of four State highway road crossings by installing sediment basins, retaining walls, new culverts, and rip rap to stabilize eroding slopes;
- Initiated a five year low-flow study to collect base flow measurements for five Downeast rivers that will enable hydrogeologists to correlate that data with permanent gauge data for the same region. Field scientists have completed two years of measurements at 27 sites;

- Closed a recreational vehicle trail that crossed the Narraguagus River that was causing unnecessary siltation due to use by four wheel drive vehicles and ATVs;
- Devoted a full time water quality specialist to work with volunteers on each of the rivers to continue collecting water quality data. 2000 was the second full year of this program.
- Created 300 linear feet of riparian buffer by fencing out cows and providing an alternative water source away from the Sheepscot River. This project serves as a model for how resource agencies, watershed councils, and landowners can cooperatively solve problems affecting water quality without creating economic hardships; and
- Initiated non-point source inventories and riparian surveys on six of the seven rivers. These surveys will become the basis for remediation projects as specified in local watershed management plans. Watershed councils completed three surveys, initiated two others, and began preparing a comprehensive watershed management plan for the Narraguagus River in 2000. Watershed councils secured funding to address several non-point source problem areas effecting their rivers ranging from eroding banks to poor road crossings and will implement their plans in the Spring 2001.

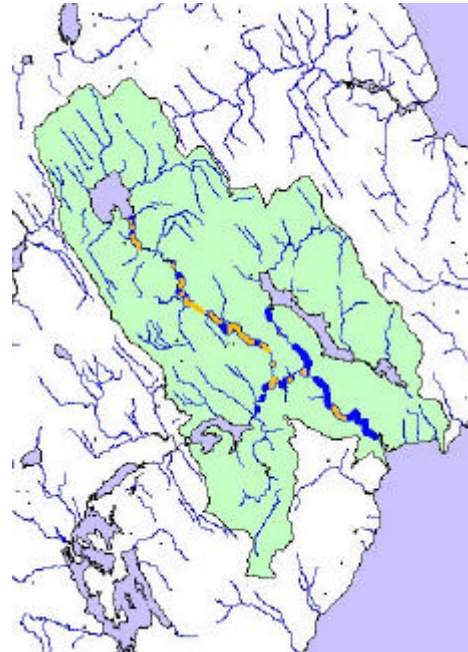
3. Habitat Enhancement

- Improved 3 fish passages on Cathance Stream, a tributary to Dennys River by rebuilding a flow control dam at Cathance Lake, replacing a fishway at the Great Works Dam, and improving fish passage at Marion Falls;
- Improved fish passage on Old Stream, a tributary of the Machias River. Project Share and DIF&W physically removed four large debris dams and two smaller obstructions, improving access to 89 units (100m²) of prime spawning habitat
- Removed 105 beaver dams on the Downeast rivers;
- Improved fish passage by removing most of the remains of an abandoned dam on the Pleasant River known as Canaan Falls;
- Upgraded a number of road crossings, ditches, and culverts on paper company lands in Washington County to reduce non-point source pollution and sedimentation. Certain landowners have undertaken a comprehensive improvement plan of their roads and have responded to a survey by LURC, noting non-point source problems, by addressing these areas immediately last summer;
- Held eight workshops promoting forestry BMPs to forestry, logging, and municipal officials (1999) and four more in 2000.

4. **Species Protection**

A) Aquaculture/Commercial Fishing

- Completed and implemented a voluntary Loss Control Code of Practices by the aquaculture industry;
- Currently developing a proposed rule to codify these practices, making them mandatory;
- Examined over 6000 fish for pathogens of concern and did not detect any;
- Conducted third party, biosecurity audits of individual aquaculture facilities to identify areas of possible improvement in practices;
- Adopted a rule requiring gear changes for elver fishermen to reduce salmon by-catch.



Ducktrap River Watershed

B) Recreational Fishing

- Adopted angling rules shortening the catch and release season on the seven rivers; then, following the first annual review of the plan, adopted a rule prohibiting all angling for Atlantic salmon in all Maine rivers. This rule took effect in January 2000 and was enforced by the Warden Service during the fishing season;
- Adopted new rules for trout, black bass, chain pickerel, and landlocked Atlantic salmon fishing to protect Atlantic salmon.

III. YEAR THREE, 2000

2000 marked the first full year the Atlantic Salmon Commission (ASC) administered the ASCP. This past year the ASC provided outstanding coordination of the many ASCP moving parts by connecting conservation needs with funding sources and services providers. The ASCP remains unchanged from the plan the Land & Water Resources Council amended in March 1999. Several significant events occurred over the past year influencing implementation of the ASCP and progress toward achieving the Plan's objectives. The ASC officially hired its first Executive Director, Fred Kircheis, a new senior biologist, Joan Trial, and a new regional biologist, Greg Mackey. In the case of the later two, these individuals filled important staff vacancies. Additionally, the Maine Legislature authorized two new Biologist I positions which the ASC filled in 2000.



The 119th Maine Legislature provided the ASC with one-time funds to assist with key implementation items. Using these funds, the ASC established a small grant program to help fund habitat conservation projects throughout the seven river watersheds, contract for professional services to assist watershed councils, purchase water quality monitoring equipment, install and remove two weirs, and acquire an access easement for another weir. More recently, Maine's Congressional Delegation successfully captured \$5 million for Atlantic salmon conservation and recovery activities. These funds will serve to fill several important needs within the Maine salmon program. The National Academy of Science received \$500,000 of this money to help resolve the issue of genetic identity of Atlantic salmon in Maine rivers. The ASC will use another \$150,000 to fund a Peer Review of the current hatchery/stocking program so biologists can refine salmon recovery efforts. Using \$300,000 of this grant, the ASC will continue three current staff positions, previously funded by the USFWS, and fill two new season conservation aides. Additionally, the ASC will construct and operate 3 weirs using \$500,000 of this money and expend another \$50,000 to operate and maintain the ASC Little Falls Field Station in Cherryfield. Lastly, the ASC will use the remainder for habitat improvement projects, IFIM flow studies, and additional research on the Downeast Rivers.

During the Fall 2000, salmon biologists worked with the aquaculture industry to transfer more than 300 adult, river-specific Atlantic salmon to a holding facility in Franklin. Several days following this exchange, they transported and stocked these sexually mature fish into the Dennys, Machias, and East Machias Rivers. Commercial aquaculture farms raised these fish as part of their contribution to the ASCP. The ASC, in cooperation with the aquaculture industry, plans on releasing a similar number of adults during the Fall 2001. The ASC will evaluate the effectiveness of this program over the next year and decide whether to continue this stocking and recovery strategy in subsequent years.

The Maine Department of Environmental Protection (DEP) completed its second year of water quality monitoring on the seven rivers and was greatly aided by watershed council volunteers on several of the rivers. This year they expanded the program to include Cove Brook,

a tributary of the Penobscot River. To date, DEP has not found any unexpected water quality results for macro invertebrate density, pH, alkalinity, temperature, conductivity, major nutrients, turbidity, or suspended solids. They have noted the continued existence of traces of hexazinone in several of the Downeast streams at low levels. DEP is investigating aluminum concentrations following acid rain events and screening the Narraguagus River for organic pollutants associated with pesticide use.

Several local watershed conservation groups continued to evolve, initiating projects and creating excellent opportunities for habitat protection projects over the coming months. With assistance from Project SHARE and the State of Maine, volunteers continued to catalogue watershed and riparian conditions on several of the Downeast rivers. For example, the Sheepscot River Watershed Council and its partner organizations completed several riparian restoration projects and are planning several more this year. The Narraguagus River Watershed Council has several riparian restoration projects planned and is developing a watershed management plan with assistance from DEP. The Machias River Watershed Council replanted 300 feet of riparian buffer in Whitneyville, while the East Machias Watershed Council worked with conservation partners to improve fish passage. The Dennys River Watershed Council began restoring a degraded stream bank on the Denny's River Sportsman's Club property. The Ducktrap Coalition continued its superlative habitat protection strategy by permanently protecting over seventy acres that include nearly a mile of stream frontage. Interested people can view many of these local accomplishments by visiting a website devoted to salmon habitat conservation by river watershed (<http://www.asf.ca/MaineCouncils/>).

The following summary, goal by goal, briefly highlights progress and challenges toward the ASCP's implementation. For some goals there are multiple organizations involved, each taking on responsibilities that are consistent with their identity. For example, multiple organizations are working on reducing non-point source pollution from either a regulatory approach or through contact with landowners and professionals working in salmon river watersheds. In most cases, lead agencies or organizations rely upon a wide variety of partners to achieve results. Most goals and related action strategies require a high degree of cooperation and coordination among participants. While individual organizations are constantly seeking improvements, this cooperation has become a hallmark of the ASCP's implementation to date.

Habitat Protection

Goal: 1) To further protect important in-stream Atlantic salmon habitat and adjacent riparian areas

Progress toward Goal: In 2000 the State of Maine and local partners continued to pursue several important riparian land protection projects that provide direct benefits to Atlantic salmon habitat and completed several others. On the Ducktrap River, the Coastal Mountains Land Trust (CMLT) acquired 8 acres of forested riparian land that includes over 1400 feet of river frontage. Additionally, CMLT purchased 640 feet of frontage on Black Brook, a Ducktrap River tributary. CMLT accepted a conservation easement on Black Brook that protects an additional 1460 feet of river frontage. With the help of Land for Maine's Future and National Marine Fisheries Service funds and technical assistance from State Planning Office, the ASC purchased 220 acres with 2,640 feet of river frontage bordering important nursery habitat on the Narraguagus River. The ASC intends on using this site to continue evaluating smolt migration. The State Planning Office and the ASC continue to work with a large forest landowner on a habitat management agreement including a permanent protection component to protect prime spawning and nursery areas. The ASC remains cautiously optimistic that the State and its partners will meet this goal's benchmark (50% of critical spawning and nursery areas protected), pending the outcome of ongoing negotiations. Significantly, State Planning Office has contracted with the Quoddy Regional Land Trust, with funding assistance from the ASC and the National Fish & Wildlife Foundation, to concentrate on riparian habitat protection projects with willing landowners in the five downeast watersheds. Separately, the ASC has provided funds to the Sheepscot Valley Conservation Association to also devote a contractor's time to habitat protection projects on the Sheepscot River. Both these initiatives have raised the capacity of local groups to pursue meaningful riparian habitat protection.



Findings: The ASCP's benchmark (ASCP –Amendment 4/23/99) calls for The State of Maine and associated partners to protect 50% of the critical spawning and nursery areas through management agreements, conservation easements, or acquisition by December 2000 [note: a previous version of the amended plan erroneously indicates a “December 1999” completion date]. Coastal Mountains Land Trust, with assistance from the State of Maine and several other organizations, has exceeded this benchmark by permanently protecting nearly 70% of the Ducktrap River. While the State Planning Office, ASC and local partners continue to pursue habitat protection under this goal, it is apparent that the benchmark is ambitious for most rivers. Agreements and purchases involving land are complex, time consuming and can be expensive. Any change to the ASCP's benchmark should account for the nature of land protection and the sheer number of potential projects along each river. Concurrently, permanent habitat protection projects should remain a high priority with the Atlantic Salmon Commission and the State Planning Office.



Goal: 2) Improve or maintain water quality for Atlantic salmon in each of the rivers

Progress toward Goal: Several State Agencies, landowners, and local conservation organizations led and participated in projects toward this goal. The goal's broad nature means that there are numerous entities that are involved in maintaining or improving water quality in each watershed. For example, it is not unusual to find a county Soil & Water Conservation District working with an individual landowner to reduce the risks of

excessive sediment movement, while at the same time the Maine Forest Service might be holding a workshop promoting practices that also reduce soil disturbance. Many of the programs are initiatives that organizations started years ago to address non point source pollution. These programs range from State and municipal shoreland regulations (and associated enforcement) to volunteer programs educating landowners about using best management practices (BMPs) to reduce non-point source pollution. The effectiveness of non-point source reduction and education programs is difficult to measure. The amount of non point source loading in the salmon rivers and tributaries depends on how much precipitation the area receives during a given storm and the quality and location of the land uses in and around the streams.

For the second year, the Land Use Regulation Commission (LURC) hired an additional staff person during the summer to help observe compliance with LURC's Districts and Standards in the field in the Downeast salmon river watersheds. Working with an enforcement professional, the intern identified over 50 possible non point source problems. Each site represented a minor problem and did not violate any land use standards. LURC staff brought these findings to the attention of the appropriate landowner, who took immediate corrective action. The Narraguagus River Watershed Council has secured funding to address a number of these identified sites for restoration.

The Maine Department of Transportation (MDOT) Office of Environmental Services, once again, took a very active role in promoting non point source pollution reduction within the seven river watersheds. Aside from extensive in-house training about the sensitive nature of Atlantic salmon habitat, MDOT carefully designed and executed their road and bridge construction projects in each of the seven river watersheds. MDOT projects during 2000 have included constructing sediment basins to collect excess winter sand, designing a protective buffer at the Rte 9 – Mopang Stream crossing, building a retaining wall to arrest erosion on the Sheepscot, and replacing a culvert at the Rte. 193 – Narraguagus River crossing. Often MDOT consulted with local conservation groups prior to and during construction and responded to problems brought to their attention by improving road crossings and stabilizing road banks. MDOT is not named as a participant in the ASCP but has willingly and eagerly contributed to protecting water quality and helping local conservation organizations by ensuring their activities cause negligible harm. These efforts are additional to the requirements of the ASCP.

Maine Department of Environmental Protection (DEP) completed the second year of a water quality monitoring program for the seven rivers, measuring for pH, alkalinity, temperature, conductivity, major nutrients, turbidity, total suspended solids, pesticides known to be used in forestry and agriculture, and presence/absence of stoneflies as indicator of toxicity. DEP has greatly increased its capability to monitor water conditions by devoting a full time staff person to the project. Additionally, local volunteers have been instrumental in collecting data and samples at key locations and times. DEP and volunteers are preparing to measure water quality from spring runoff in April. DEP will create a water quality database using recently collected data and historic information. They will make their analysis of the data available to the interested public.



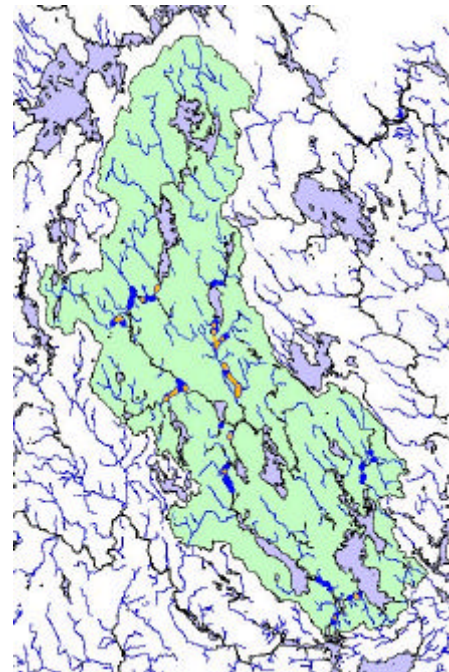
Several local organizations made further strides in assessing and cataloguing potential non point source problem areas in their river watersheds. Additionally, with the assistance of a so-called Section 319 grant from the Maine Department of Environmental Protection, local conservationists completed an inventory of watershed conditions that could affect water quality on the Narraguagus, Pleasant, and Sheepscot Rivers and are nearly finished with a similar survey on the Dennys River. These reports are the basis for restoration priorities and actions local groups will address over the next three years. Watershed Councils on the Sheepscot, Narraguagus, and Dennys Rivers have begun to address documented non point source problems with restoration projects. For example, over one hundred volunteers organized by the Sheepscot River Watershed Council helped replant an open riparian area (covering ½ mile of riverbank) with native trees. Notably, The Dennys River Watershed Council also initiated a riverbank restoration project. The Narraguagus River Watershed Council began an ambitious habitat restoration project by addressing several riparian problems along the river in Cherryfield. Each watershed council continues to assess their river watershed and plan activities to protect/restore habitat while promoting their efforts to the general public. During 2000 the ASC and Project SHARE continued to work with watershed councils to raise their capacity to plan for and execute habitat protection projects through the use of grants and targeted professional assistance.

The Ducktrap Coalition and several partners including state and federal agencies began a project to restore 1,750 feet of streambed and correct problems on a completed a survey of riparian conditions as part of their contract with SPO. The Ducktrap River is not subject to the same types of land use activities as the other salmon rivers and the Ducktrap Coalition instead is concentrating on permanently protecting and improving in-stream and riparian habitat through acquisition and easement. For example the CMLT successfully purchased an old gravel pit and then the Ducktrap Coalition restored the property, which had been eroding into the river.

Findings: The State and its partners have made substantial progress in implementing all projects related to water quality, laying the groundwork, as the ASCP envisions, for improving, maintaining, and ongoing monitoring of water quality in the seven rivers. DEP classifies six of the seven rivers as Class AA, the State's highest water quality classification. Additionally, the Maine Legislature upgraded several tributaries of the Narraguagus, Machias, and East Machias Rivers to Class AA.

While incomplete at the time of this writing, DEP's water quality monitoring data for 2000 does not reveal any unexpected results or any significant differences from the 1999 data. DEP has found that there are perceptible differences between water chemistry in tributaries and in the main stems. Not surprisingly, several tributaries exhibit higher acidity and greater aluminum content than their parent rivers following rainstorms. DEP suggests further research to determine if these periodic events produce conditions that compromise fish health.

Volunteers and professional staff continue to document riparian and watershed conditions on six of the seven rivers, having previously completed this work along the Ducktrap River. So far, these inventories have led to positive restoration actions in several of the rivers and will likely result in additional projects in 2001. Regulations designed to protect water quality coupled with local surveys and restoration activities are providing protection and incremental improvement to water quality on the salmon rivers. Future protection and incremental water quality improvement will depend on the commitment by regulators and volunteers to cooperatively work with landowners to find alternatives to problem practices and conditions.



East Machias River Watershed

Goal: 3) To ensure water withdrawals do not adversely affect Atlantic salmon

Progress toward Goal: At its April meeting, the Land & Water Resources Council recommended that the Land Use Regulation Commission (LURC), for the third year in a row, restrict water withdrawals from the Pleasant, Narraguagus Rivers and Mopang Stream. These restrictions applied to permits granted to Cherryfield Foods on the Pleasant River and Mopang Stream and to Jasper Wyman and Sons on the West Branch of the Narraguagus River. Based on new Instream Flow Incremental Methodology (IFIM) data, LURC required more stringent flow standards as permit conditions to over a dozen different pumping sites in the three rivers. Thus, LURC has increased the limitations on water withdrawal each year during the implementation of the ASCP. Fortunately, flows in all the Downeast rivers were relatively high (as compared to the 1999 drought conditions) resulting in less demand for water during low flow periods. However, blueberry farmers continued to supplement natural precipitation with irrigation water, a practice that contributed to a record blueberry harvest in 2000.

The Water Use Management Plan (WUMP) Technical Team convened on several occasions during 2000 to review, comment, and edit the water use management plan drafts for the Pleasant, Narraguagus Rivers, and Mopang Stream provided by the Army Corps of Engineer's subcontractor, Horsley and Whitten Inc. The Technical Team concluded that the models developed by Horsley & Whitten are too coarse to apply to specific irrigation projects but are valuable in showing options to direct withdrawal from the three streams. Horsley & Whitten completed their documents in December 2000. Members of the WUMP Committee prepared an



over arching document (applies to all three drainages) that identifies habitat issues associated with low flows and offers a menu of alternatives to withdrawing water during low flow periods. This document will serve as the WUMP for the three river basins with the Horsley and Whitten "hydrologic aspects reports" appended.

The ASC has contracted with Kleinschmidt Associates to technically edit these chapters and prepare a final WUMP. They will complete this work in March 2001. State

agencies and irrigators are already implementing several of the WUMP's recommendations, including maintaining a USGS gauge on the Narraguagus River, placing a gauge on the Pleasant River, and funding a five-year, low-flow study. Other implementation items such as technical assistance to farmers, integrating a hierarchy of water withdrawal options into State programs, and developing a reach specific monitoring program are all in the development stage.

The Ducktrap Coalition and several partners including state and federal agencies began a project to restore 1,750 feet of streambed and correct problems on a completed a survey of riparian conditions as part of their contract with SPO. The Ducktrap River is not subject to the same types of land use activities as the other salmon rivers and the Ducktrap Coalition instead is concentrating on permanently protecting and improving in-stream and riparian habitat through acquisition and easement. For example the CMLT successfully purchased an old gravel pit and then the Ducktrap Coalition restored the property, which had been eroding into the river.

Findings: The State has made substantial progress toward the goal of protecting Atlantic salmon habitat from excessive water withdrawals. By setting limits based on sound scientific analysis, the State has established a policy that protects salmon habitat. LURC has adopted these standards into permit conditions. The Land & Water Resources council has charged a working group (otherwise known as the "Sustainable Water Withdrawal Policy Group") to make policy recommendations for water withdrawal statewide. This group, chaired by DEP and the Department of Agriculture and consisting of stakeholders, is examining regulatory and non regulatory methods of providing for commercial use of surface and ground waters while protecting the values of these resources. Among the issues they are confronting is the discrepancy between LURC standards and DEP rules governing water withdrawals. Until this difference is resolved, LURC will continue to apply restrictions to water withdrawals from Mopang Stream, and the Pleasant and Narraguagus Rivers in the unorganized territories.

The complexity and politics of the water use management issue have delayed completion of the WUMP for the Narraguagus, Pleasant Rivers, and Mopang Stream. Final completion of these plans is expected by April 2001, and will set into motion a series of implementation strategies aimed at protecting Atlantic salmon through monitoring, development of withdrawal and storage options, and the application of water conservation practices.

Goal: 4) To make historical habitat areas accessible to migrating Atlantic salmon

Progress toward Goal: In early Fall 2000, Atlantic Salmon Commission, Inland Fisheries and Wildlife, and Project SHARE removed six debris dams on the Machias River improving access to 89 units of spawning habitat. Local partners made repairs to the Chase Mill Stream Dam on the East Machias River to provide sufficient flow for fish passage. Federal, State and local conservationists remove the remains of the former Bangor Hydro Dam on the East Machias River. While this dam did not pose a significant barrier to Atlantic salmon, this project improved passage and demonstrated the power of cooperative efforts to enhance riparian and instream habitats. Biologists and local volunteers have made fish passage improvements each year of the ASCP and will continue to address fish passage as local surveys and field reconnaissance reveal problem areas.

The Ducktrap Coalition and several partners including state and federal agencies began a project to restore 1,750 feet of streambed and correct problems on a completed a survey of riparian conditions as part of their contract with SPO. The Ducktrap River is not subject to the same types of land use activities as the other salmon rivers and the Ducktrap Coalition instead is concentrating on permanently protecting and improving in-stream and riparian habitat through acquisition and easement. For example the CMLT successfully purchased an old gravel pit and then the Ducktrap Coalition restored the property, which had been eroding into the river.

Findings: The State and its partners have substantially achieved the goal of increasing accessibility to historic habitat by improving fish passage. Because beaver populations are robust, removing their dams will be an annual activity each fall. Continued removal of beaver and debris dams will allow returning adult spawners, overtime, to access important tributaries on a regular basis.

Habitat Enhancement

Goal: 5) To protect, enhance, and restore high and moderate value wetlands

Progress toward Goal: DEP has set up a registry of wetlands that applicants could draw upon for wetland mitigation projects. To date, DEP has not identified any high or moderate value wetlands that are degraded within the seven salmon watersheds.

Both DEP and LURC processed applications for wetland alterations as part of their ongoing programs. There were few applications in the salmon watersheds to alter wetlands. Each agency

has provided permitting staff with salmon habitat information and made staff aware of the sensitive nature of the salmon rivers.

LURC's Districts and Standards regard flowing or standing waters as high value wetlands. In 1999 LURC issued four permits where wetlands were involved. Two involved stream crossings and two involved water withdrawals. In each instance LURC required the applicant to minimize impacts on the wetlands or restrict water use to protect Atlantic salmon habitat.

Findings: Based on the level of wetland alterations requiring a permit in the salmon watersheds during 2000, water quality and quantity have not been negatively affected by wetland projects. Continued vigilance by DEP and LURC, with comments from the ASC and IF&W biologists as part of the permit review process, should continue to provide adequate protection to wetlands.

Species Protection

Goal: 6) Eliminate risk to Atlantic salmon from recreational angling or poaching

Progress toward Goal: 2000 was the first year that angling for Atlantic salmon throughout all Maine Rivers was prohibited. This controversial action is a clear demonstration that the Atlantic Salmon Commission is committed to eliminating risks that compromise a salmon population's ability to thrive.

Wardens from the Maine Department of Inland Fisheries and Wildlife (IFW) and the Department of Marine Resources (DMR) continued their targeted patrols of the salmon rivers from April to November. Wardens logged over 970 patrol hours, checked 480 anglers, and began enforcement action on three individuals charged with setting a gill net on the Sheepscot River.

IF&W and the Atlantic Salmon Federation distributed 5000 posters and 10,000 wallet cards to help anglers differentiate salmon parr and smolt from other salmonids. IF&W also added a section to their fishing regulations that helps anglers recognize young salmon.

Findings: The State is meeting the goal of eliminating risks posed by recreational angling or poaching. With the closure of the salmon fishery from angling, wardens will continue to concentrate on poaching activities. IF&W's angler education program will help reduce trout fishermen from incidentally catching Atlantic salmon in the seven rivers.

Goal: 7) To reduce the by-catch of salmon from riverine and estuarine commercial fishing activities

Progress toward Goal: As in 1999, poor markets in 2000 for elvers resulted in fewer licenses sought by fisherman and less fyke net and dip net activity altogether. In fact, there were a total of 8 fyke nets deployed on the Downeast rivers in 2000, down 66% from the previous year. Marine wardens observed no incidental catch of salmon from these operations and that each net included the required exclusion panels.

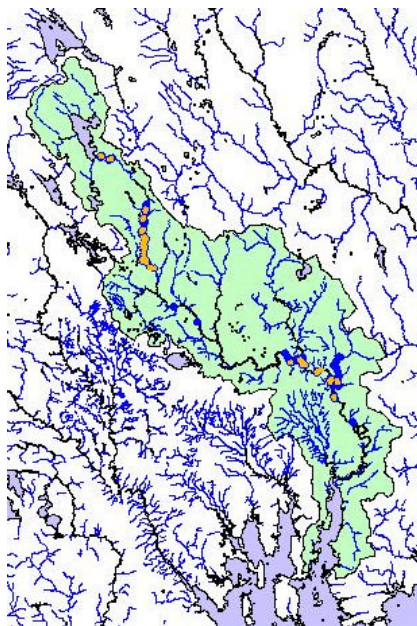
The Department of Marine Resources (DMR) concluded that there was a low risk of by-catch from alewife or rainbow smelt fishing in the salmon rivers due to the location, timing, and amount of these fishing activities. Essentially, there is very little commercial fishing for alewives and even less for rainbow smelts. The timing and location of the alewife fisheries on the Dennys, East Machias, and Narraguagus Rivers significantly reduces the possibility of by-catch. During 2000, there were no commercial sucker fisheries on any of the salmon rivers.

Findings: Through the efforts of DMR, in cooperation with IF&W, the State continues to meet this goal. Continued monitoring of these commercial fisheries will ensure that by-catch of Atlantic salmon remains a very low risk.

Goal: 8) To appropriately control natural predation of adult and juvenile Atlantic salmon in the rivers and estuaries

Progress toward Goal: Predators of concern are double-crested cormorants and harbor seals, both of which are protected by Federal law. The ASCP (4/23/99) amendments call for the National Marine Fisheries Service (NMFS) and the US Fish & Wildlife Service (USFWS) to “develop federal depredation control policies to address threats to Atlantic salmon restoration.” USFWS does not mention any progress on this goal in their submission of 2000 ASCP activities. The NMFS reports funding two studies on interactions between seals and Atlantic salmon.

Findings: There continues to be much concern about the effect on salmon populations from natural predators, most notably seals and cormorants. Until there is some indication on the part of the federal services to seriously consider waivers to the Marine Mammal Protection Act or the Migratory Bird Act or population control policies, there appears to be little opportunity to control this problem, or at least complete research that would reveal the magnitude of the predation problem.



Pleasant River Watershed

Goal: 9) Reduce the effect of competing fin fish species on Atlantic salmon populations

Progress toward Goal: The ASCP calls upon fisheries biologists from IF&W and the ASC to develop a Memorandum of Agreement on stocking programs after assessing current stocking practices to identify conflicts. IF&W has compiled information about finfish stocking programs in the seven salmon rivers. ASC and IF&W biologists have yet to complete an agreement though they have discussed the details of such an agreement during the last year and are nearing its completion.

Findings: The steps associated with this goal were scheduled for completion in Spring 2000. The ASC and IF&W are behind schedule on this goal.

Goal: 10) To reduce the potential risks of pen raised fish interbreeding and competing with wild Atlantic salmon

Progress toward Goal: The Atlantic Salmon Commission placed fish weirs on the Pleasant in June and Dennys Rivers in May 2000. Each weir was operational until the ASC removed them in the fall for winter storage. Together with the Narraguagus River trap, these three structures captured 29 aquaculture salmon. Designs for a weir on the East Machias River are complete and represent an improvement over the weirs on the Pleasant and Dennys Rivers. The ASC prepared an application and is awaiting a permit from the DEP and the Army Corps of Engineers to construct the weir on the East Machias River at the “Gaddis Pool.” The ASC also obtained an easement from the landowner allowing biologists and construction workers to access the weir site for ten years. Finally, the ASC has selected a contractor to construct the new weir and anticipates construction to begin in the Spring 2001. The East Machias Weir will be made of aluminum and will be easier and safer for workers to install, operate, and remove.

The combination of the two new weirs, the trapping facility at the dam on the Narraguagus, and the industry driven loss control code of practices has significantly reduced the threat of potential interactions between salmon in three of the five, Downeast rivers. With a weir on the East Machias River, improvements made to existing hatchery facilities, and adherence to containment practices with regulatory oversight will further reduce risk of potential interactions. A fishway and trap on the Machias River will enhance protections on that river which already has in place a natural barrier (Machias River Gorge) that provides a reasonably effective barrier to farm fish attempting to swim up river. In addition, the two remaining rivers, the Ducktrap and Sheepscot, are sufficiently distant from current commercial aquaculture pens so as to not present a realistic risk of potential interaction.

The Aquaculture Industry operated its facilities under the third year of the industry’s voluntary code of containment practices. In response to concerns about the effectiveness of voluntary management practices, the Department of Marine Resources began to develop draft rules codifying the industry’s containment code of practices. However, following the federal government’s listing of Atlantic salmon under the Endangered Species Act, DMR suspended the proposed rule-making on containment standards and procedures and is now considering an appropriate regulatory mechanism.

Findings: The State of Maine and its partners have made additional progress toward reducing potential interactions between farmed and wild fish during 2000. With additional trapping facilities in place in 2001, potential interactions will be further reduced. Current challenges include funding for a fish trap at the Machias River Gorge and obtaining operating funds for removing and installing the weirs each fall and spring. Cooperative measures by the Aquaculture Industry in reporting losses of captive fish improved in year 2000 and the State looks forward to more progress in this area.

Goal: 11) To reduce the potential of disease transmission between farmed fish and wild Atlantic salmon

Progress toward Goal: In 2000 the State of Maine made continued progress toward this goal by implementing fish health rules adopted in 1999. Inspectors screened over 6000 fish for a variety of pathogens in 2000. Fish health inspectors reported they did not detect any diseases of regulatory concern. The aquaculture industry monitored their marine sites for evidence of Infectious Salmon Anemia virus (ISAv) and found none. Several companies participated in third party, biosecurity audits of their processing operations and marine sites. The audits showed room for improvement for containing fish wastes that potentially carry disease and provided individual companies with information to help them minimize escapement at sea cage facilities.

USFWS' Fish Health Unit supported annual health inspections at the Craig Brook National Fish Hatchery. They sampled all lots of fish held at the hatchery and did not discover any pathogens. Inspectors also screened adult spawners at the hatchery for viruses. Biologists sent blood samples from fish they collected from the Pleasant River to Cornell University to test for Salmon Swimbladder Sacroma virus (SSSV) for further research. Using non-lethal sampling techniques, biologists tested wild marine fish for salmonid disease agents, finding no positive detections. A team from the Fish Health Unit also inspected out-migrating smolts from the Pleasant and Narraguagus Rivers for disease.

Findings: With implementation of the new rules, the State of Maine has become a leader in disease detection and control of cultured and wild salmonids. For the first time fish health standards apply evenly to commercial and public hatchery facilities. Moreover, the new rule provides mechanisms to quickly respond to diseases as yet discovered. With the oversight of veterinarians serving the Fish Health Technical Committee (FHTC), the State of Maine has significantly improved its capability to reduce disease transmission between farmed and wild salmonids, and thus is substantially achieving this goal.

Fish Management

Goal: 12) To achieve optimal smolt production commensurate with the habitat's production capacity

Progress toward Goal: Atlantic Salmon Commission and US Fish & Wildlife Service biologists continued their program of broodstock collection and fry stocking into five of the seven rivers. During Summer 2000 they collected parr from the Dennys, East Machias, Machias, Pleasant, Narraguagus and Sheepscot Rivers to raise in river-specific facilities at the Craig Brook National Fish Hatchery as future captive spawners. The annual broodstock collection program allows biologists to supply each designated river with enough fry to saturate known juvenile habitat in hopes that many will survive to become out-migrating smolts.

Last spring, biologists stocked, in total, 463,000 fry into the Sheepscot, Narraguagus, Machias, East Machias, and Dennys Rivers. As in 1999 biologists did not stock fry stocking in the Pleasant River because of the lack of captive broodstock.

Researchers conducting a NOAA-Fisheries sponsored study on the Narraguagus River collected data for the fourth year on smolts leaving the river and began collecting similar data for the Pleasant River. Researchers continue to analyze the data accounting for smolt that survived but did not leave the river system until the following spring, which may affect the preliminary survival rate data. Due to the short duration of the study and factors influencing survival estimates, the Atlantic Salmon Commission cannot draw any conclusions as to whether the early study results represent a trend or if the study has any relevance to other rivers' smolt populations.

Findings: Smolt survival on each river is critical to a successful restoration of river populations of Atlantic salmon. Biologists will continue to trap smolts on the Narraguagus and Pleasant Rivers to supplement existing data. Additional research is needed to determine the nature and extent of apparent declines in parr to smolt survival rates among all the rivers.

Goal: 13) Ensure that the current stocking/hatchery program for river-specific Atlantic salmon adapts to the best available science

Progress toward Goal: During 2000 State officials prepared a plan and a scope of work for a comprehensive peer review of the current stocking and hatchery program in restoring populations in six of the seven rivers. Recently the State of Maine has chosen the American Institute of Biological Services to perform the review.



Findings: The State of Maine anticipates that the findings and recommendations from the peer review will be complete by June 2001.

Goal: 14) To annually assess stocks of wild Atlantic salmon and accurately estimate populations in each of the seven rivers to allow adjustment to stocking requirements and management measures

Progress toward Goal: The ASC has made significant progress toward achieving this goal with the addition of two, new fish counting weirs. As in past years, salmon biologists spend considerable time and effort measuring the health of Atlantic salmon populations in each of the seven rivers. Weather conditions, water clarity, flow rates, available equipment, and skill play a role in biologists' ability to accurately calculate the runs in each river. Years of experience have endowed biologists with a good base of indicators to help measure the health a given river's population. The following population figures show numbers of observed, adult Atlantic salmon for each of the seven rivers since the beginning of the ASCP.

Table of Atlantic Salmon Abundance Indicators for Seven Maine Rivers.

RIVER	ADULT COUNT				ROD CATCH				REDD COUNT			
	1997	1998	1999	2000	1997	1998	1999	2000	1997	1998	1999	2000
Sheepscot	n/c				0	0	n/a	n/a	8	2	21	16
Ducktrap	n/c				0	0	n/a	n/a	2	9	29	2
Narraguagus	31	22	34	21	13	15	n/a	n/a	75	63	43	21
Pleasant	0	0	0	3	0	0	n/a	n/a	1	2	0	1
Machias	n/c				10	5	n/a	n/a	57	74	46	23
East Machias	n/c				0	0	n/a	n/a	11	74	24	10
Dennys	0	0	0	2	10	0	n/a	n/a	37	32	23	60
TOTALS	31	22	34	26	23	20	n/a	n/a	196	249	186	133
n/c means no count available n/a means not available in 1999 or not allowed in 2000												

Salmon biologists continued to estimate juvenile populations in each river by measuring densities of parr through electrofishing. These data are not yet available for 2000.

Findings: There are several factors that confound biologists as they assess populations of native Atlantic salmon in the seven rivers. During the fall, unless weather and flow conditions are favorable, biologists frequently cannot finish the redd count by the time winter conditions set in. In 2000, these factors were less of a concern as biologists were able to complete redd counts before the onset of winter. Another factor impacting the number of redds is stocking of mature broodstock that often successfully spawn. In the fall, biologists released far fewer broodstock back into the rivers, than in the previous three years, which may account for the proportionally lower number of redds last fall. However, the high number of observed redds on the Dennys is directly attributable to the aquaculture (of Dennys origin) fish that biologists released into the river in late October.

Biologists were only able to accurately count adult Atlantic salmon returning to the Narraguagus up until the Fall 1999, previously relying mostly on redd counts and rod catch information to assess a population's relative health. The ASC increased its capacity to monitor adult returns on the Pleasant and Dennys Rivers in 1999 and will expand its capacity on the East Machias and Machias Rivers in 2001.

Weirs and downstream trapping facilities will greatly aid biologists in assessing populations in the Pleasant, Dennys and the East Machias Rivers. Biologists will continue to rely upon field observations for the Ducktrap and Sheepscot counts. With a trapping fishway on the Machias and an improved dam structure on the Narraguagus, biologists will be able to gather more accurate adult return information.



IV. CONCLUSIONS / RECOMMENDATIONS

During the last 12 months the State of Maine and its partners have made steady and substantial progress toward meeting the ASCP's goals. Notably, fish health standards and protocols are more comprehensive than ever before, weirs are shielding native Atlantic salmon from aquaculture strays, and the State has limited direct water withdrawals from certain rivers to protect Atlantic salmon habitat. A consortium of volunteers and professionals have begun water quality monitoring on each identified salmon river, the State prohibited angling for Atlantic salmon throughout Maine, and many organizations, government agencies, and landowners have documented and are addressing a variety of non-point source pollution problems. Biologists continue to implement recovery measures through population assessments and scientifically based stocking programs, work continues toward permanent protection of critical riparian habitats on each river, and conservationists improved fish passage by removing debris dams and upgrading fish passage facilities. Many of these actions and results stem from initiatives begun in 1998 the same way that much of the ASCP related work in 2000 lays the foundation for additional successes in 2001. For example, the work of local conservation groups to catalogue non-point source pollution problem areas and riparian conditions will lead to actual site restoration work in 2001. Similarly, discussions with key riparian landowners coupled with a greater local capacity to plan for and complete work, should result in additional permanent protection projects along important stretches of the seven rivers.

Several of the ASCP goals and associated tasks need additional attention in 2001. For example, lead agencies and organizations must monitor implementation and adherence to best management practices (BMPs) to evaluate their effectiveness. The Atlantic Salmon Commission (ASC) recommends that State agencies promoting BMPs as an effective way of protecting water quality, should amend their ASCP work plans to annually assess rates of BMP use in each of the salmon river watersheds.

The ASCP's partners concerned with permanent protection of riparian habitat will require a heightened level of effort to achieve significant results in 2001. With new Land for Maine's Future funds, there is an opportunity to accelerate riparian protection projects. Enhanced coordination between State agencies and land conservation organizations for funding and project development will be necessary in 2001.

While the ASC has completed construction of two fish weirs, two more trapping facilities are needed to fulfill the State's obligation under the ASCP, a weir on the East Machias River and a trapping facility on the Machias River. The ASC intends to complete the East Machias River weir in 2001 and the Machias River fish trap in 2002.

Several local conservation groups have successfully begun to document watershed and riparian conditions that are in need of improvement such as, but not limited to, poor salt and sand storage locations, unbuffered stream banks, eroding road shoulders, misplaced culverts, and inadequate stream shading. These inventories represent a critical first step in preparing functional watershed management plans. The ASC recommends that DEP amend its ASCP work plan to provide finite, targeted technical assistance to watershed councils preparing watershed management plans. DEP may assist by providing a citizens' guide and template for a river watershed management plan, training local conservationists about preparing watershed management plans, and providing technical review to plan drafts.



Finally, the ASC's new role as administrator of the ASCP requires that it closely monitor progress on a wide variety of tasks designed to protect and enhance Atlantic salmon and its habitat. Much of the field data is collected by, and held in files within various agencies working in the salmon river watersheds. The ASC is building a central database of Atlantic salmon and habitat related information and needs the cooperation of all organizations that are collecting this field information. The ASC recommends that each State Agency amend its ASCP work plan to provide up-to-date geographically referenced (GIS compatible) information (where applicable) to the ASC each quarter. The ASC will work with each agency to come up with an appropriate format and protocols for information that they can share routinely. In turn, the ASC will make its comprehensive database available to all cooperators for use in their own efforts to protect and restore habitat.

Maine State Agencies

Dept. of Agriculture, Food & Rural Resources
Atlantic Salmon Commission
Dept. of Conservation
Dept. of Environmental Protection
Dept. of Inland Fisheries and Wildlife
Dept. of Marine Resources
State Planning Office
Dept. of Transportation

Department of Agriculture, Food & Rural Resource

Department of Agriculture, Food and Rural Resources

Atlantic Salmon Conservation Plan – Annual Report

Date: November 15, 2000

Goal #2: Improve or maintain water quality for Atlantic salmon in each of the rivers.

Progress towards Goal; Project D – set up non-point source pollution reduction programs targeting agricultural activities to reduce water quality impacts.

Participants: USDA-NRCS, University of Maine Cooperative Extension, SWCD offices, Maine Board of Pesticides Control and the Department of Agriculture.

The Board of Pesticides Control Programs:

The Board of Pesticides Control has continued to be involved in ongoing efforts to address whether pesticide use in the watersheds of the seven rivers poses potential threats to Atlantic Salmon. The primary focus has been on monitoring surface waters for pesticide residues. This work has included both time series studies of the Pleasant River and a project to identify insecticide drift from scheduled applications in close proximity to the Narraguagus and Pleasant Rivers. In this latter study, the Board has collaborated with the Department of Environmental Protection (DEP) in having their volunteers collect storm event samples from these same locations throughout the remainder of the growing season. Interested parties should check the DEP's report to see the results of additional samples collected after the day of pesticide application.

In May 2000, the Board published the results of sampling for the previous year and a summary is included below. In addition, results of sampling during the 2000 growing season are described in the following paragraphs.

1999 SUMMARY: Water Quality Monitoring

(Task 1, 2) A time series project initiated in 1998 was continued in 1999. Surface water samples were collected twice in June, July, and September, and once in October, November, and December from a public access boat landing located on the Pleasant River in Columbia, Maine. The samples were analyzed for the following active ingredients, which are recommended for use on blueberries by University of Maine Cooperative Extension Wild Blueberry Fact Sheets: captan, chlorothalonil, propiconazole, diuron, hexazinone, terbacil, guthion, phosmet, diazinon, malathion, and methoxychlor. Results from these sampling activities indicate that hexazinone continues to be the only active ingredient detected at this site.

In a drift study conducted in July 1999, 13 surface water samples were collected within 24-hours of widespread aerial application of blueberry insecticides in the Narraguagus and Pleasant River watersheds to determine if off-target drift of pesticides was reaching those rivers at detectable levels. The samples were analyzed for the same set of active ingredients as the time series samples collected during 1999 (see list in above paragraph). Hexazinone was detected in

all but 2 of the samples, and the sample with the highest hexazinone level (3.8 ppb) also had terbacil detected at 0.148 ppb. Neither the insecticide sprayed the previous day nor any other active ingredients were detected in any of the samples.

1999 ATLANTIC SALMON WATER QUALITY MONITORING PROJECTS					
Watershed	Project Type	# of Samples	# of Detections	Active Ingredient Detected¹	Range of Concentrations (ppb)²
Pleasant River	Time Series	9	9	Hexazinone	0.13 – 1.67
Narraguagus River	Drift Study	5	4	Hexazinone	ND ³ – 2.29
Pleasant River	Drift Study	8	7	Hexazinone (7) Terbacil (1)	ND – 3.8 ND – 0.148

1. ppb = parts per billion
2. The number in parentheses after the active ingredient indicates the number of samples with a positive detection of that active ingredient.
3. ND = Not Detected

2000 SUMMARY:

(Task 2)The time series study has continued as in previous years. The original sample plan was to collect samples once a month during the non-spray season (November through April), then twice per month during the spray season (April through October). Due to unforeseen field staffing issues, samples were collected once per month in January, April, May, June, and August, and twice per month in July, September and October. A new system has been worked out to ensure that samples get collected according to the original plan.

We also conducted a drift study similar to the 1999 study. To overcome problems with the 1999 study design, BPC field staff worked closely with pesticide spray supervisors at Cherryfield Foods, Inc. and Jasper Wyman and Sons, Inc. to determine exactly when and where aerial application of the insecticide Imidan was to occur. Several hours prior to the application, filter paper and drift cards were put out as close as feasible to surface waters adjacent to fields scheduled for spraying. The papers and cards were collected several hours after the spraying was completed, and at that same time, water samples were collected. The filter papers were analyzed for phosmet (the active ingredient in Imidan), and the water samples were analyzed for the same set of compounds as in the previous drift study and the time series study. This study showed the importance of getting the sampling equipment out just prior to spraying and collecting water samples just after spraying.

A study looking at hexazinone concentrations in ground water discharging to surface water was also conducted within the Pleasant River watershed in 2000. The objective of this study was to determine how the levels of hexazinone in ground water discharges compared to historical levels within the main stem of the river. A list of known discharge locations was obtained from the Fish and Wildlife Service and samples were collected from several of those locations.

The final study conducted in 2000 involved the collection of surface water samples from first order streams within the Pleasant River watershed. The Little River was the main tributary

focused on, due in part to the number of access points to it and its tributaries. The objective of this study was to see how levels of hexazinone in small streams compared to historical levels within the main stem of the river.

2000 ATLANTIC SALMON WATER QUALITY MONITORING PROJECTS					
Watershed	Project Type	# of Samples	# of Detections	Active Ingredient(s) Detected	Range of Concentrations
Pleasant River	Time Series	11 (to date)	10	Hexazinone	ND – 1.42 ppb
Narraguagus River	Drift Study (Water)	7	6	Hexazinone (6) Phosmet (3)	ND ² – 2.65 ppb ND – 0.52 ppb
Pleasant River	Drift Study (Water)	4	3	Hexazinone (3) Phosmet (1)	ND – 0.97 ppb ND – 0.1 ppb
Narraguagus River	Drift Study (Filters)	7	6	Phosmet	ND – 21,978 ng ¹ per filter
Pleasant River	Drift Study (Filters)	4	4	Phosmet (4)	59.2 – 731 ng per filter
Pleasant River	Spring Study	8	6	Hexazinone	ND – 3.08
Pleasant River	Tributary Study	11	8	Hexazinone	ND – 1.4

1. ng = nanograms

Other non-point source (pesticides) pollution control activities:

(Task 3) It is easy to see that the highly soluble blueberry herbicide hexazinone is the only pesticide detected in the time series studies for the past three years, and the highest level of detection was a very low 3.8 parts per billion. To address this issue, the Board reconstituted its Environmental Risk Advisory Committee (ERAC) to include as ad hoc members a fisheries biologist from the Atlantic Salmon Commission and another from the Department of Environmental Protection. The ERAC has met twice to consider the hexazinone results and concluded further toxicity testing on salmon is unwarranted based on their resistance - 100,000 parts per billion lethal concentration to 50 percent of the adult population -to this herbicide. A literature review to assess the potential impact of hexazinone on the aquatic food supply for the fish is scheduled to be performed and discussed at the next ERAC meeting.

(Task 1) The Board initially identified sixty-three active ingredients that could potentially be used in the watersheds of the seven rivers and planned to develop a matrix of information for each that could be reviewed by the ERAC. This would be a major undertaking and the lack of positive detects for other pesticides in the water monitoring program has caused the BPC to question the need to complete this task.

(Task 4,5,6) The Board continued to participate in the annual spring grower meetings for blueberry growers where the need to follow best management practices is always stressed. In addition, the Board performed its regular monitoring for compliance with its statutes and regulations and did not detect any violations or receive any complaints about blueberry or forestry pesticide applications during the 2000 growing season. The Board did not make any

additional attempt to identify specific agricultural fields after learning the U.S. Natural Resource Conservation Agency had already completed this task.

Other Agricultural non-point sources (pesticides) (task 5)

The following are program activities and results of the leaf/nutrient program:

Wild Blueberry Spring Grower Meetings.

Each year the UMCE sponsors the spring grower meetings. The purpose of these meetings is to bring current research results and activities to the growers. Participants include University research faculty, Department of Agriculture, Board of Pesticide Control, Wild Blueberry Commission and other state and federal presenters.

Meetings were conducted at:

South Paris, March 28; Union, March 29; Ellsworth, March 30; Machias, March 25, 2000.

Union, March 17; Ellsworth, March 18; Machias, March 20, 1999.

South Paris, March 23; Union, March 26; Ellsworth, March 25; Machias, March 28, 1998.

South Paris, March 17; Union, March 19; Ellsworth, March 20; Machias, March 22, 1997

ICM/IPM Training Sessions:

The wild blueberry sessions included training on liquid and granular herbicide calibration, blight identification and control, insect sweeping and identification, weed identification and management, blueberry maggot fly trapping, and leaf and soil sampling. Training has been provided for these sessions over the past five years. This year Frank Drummond began to participate by presenting the insect portion. At cranberry IPM sessions, UMCE presented a weed management program and brought in other speakers to cover disease and insect topics. In addition, videos of all of the cranberry sessions were made and distributed to the Washington and Hancock County Extension offices and to the Downeast RC&D and Tide & Tide RC&D offices to be used by growers who could not attend the sessions.

2000 ICM field training sessions:

Knox/Lincoln Counties May 2, 30 & June 27; Washington County May 3, 31 & June 28;

Hancock County May 4, June 1 & 29, 2000. Presented Cranberry Tag Team Presentation:

Cranberry Weed Management. T-19 Passamaquoddy Cranberry Beds, July 14, 2000.

1999 ICM field training sessions: Knox/Lincoln Counties May 4, June 1 & 29;

Washington County May 5, June 2 & 30; Hancock County May 6, June 3 & July 1, 1999.

1998 ICM field training sessions: Knox/Lincoln Counties May 5, June 2 & 30; Washington

County May 6, June 3 & July 1; Hancock County May 7, June 4 & July 2, 1998. Cranberry IPM and Weed Management, Cherryfield RC&D, June 11, 1998.

1997: UMCE discussed the results of reducing hexazinone rate by conducting an in-field demonstration of the rate of Velpar/MAP and techniques for using spot treatment of granular hexazinone, held at two locations: on June 30 in Union, and on July 1 on T-19 MD. A review of blueberry fruit fly trapping techniques was also done at this meeting. WE conducted a second field demonstration on the effectiveness of fungicide treatments on June 12 on T-19 MD. There was review of the life cycle of Monolinia and Botrytis and a demonstration of the effectiveness

of the fungicide treatments. There was also a review of insect sweeping and scouting techniques. Data from this demonstration, as well as previous and subsequent fungicide trials has been incorporated into the 2000 Disease Control for Wild Blueberries (A2), Wild Blueberry Fact Sheet No. 219. Growers will have a guide as to the relative effectiveness of the available fungicides and use the most effective chemical, timing and rate.

Sampling for fruitworm eggs and Sparganothis control, Charles Armstrong, Downeast RC&D, Cherryfield, ME July 14, 1997.

Presented Cranberry IPM session on Weed identification and prioritizing cranberry weed problems to cranberry growers, Downeast RC&D, Cherryfield, ME July 15, 1997.

1996: Presented a review of Massachusetts Cranberry Station IPM Workshops to cranberry growers, Downeast RC&D, Cherryfield, ME July 16, 1996. Organized Cranberry IPM sessions: Diseases: Frank Caruso, University of Massachusetts, Downeast RC&D, Cherryfield, ME July 11, 1996.

Weeds: Hillary Sandler, University of Massachusetts, Downeast RC&D, Cherryfield, ME July 25, 1996.

Insects: Dan Mahr, University of Wisconsin, Downeast RC&D, Cherryfield, ME July 30, 1996.

Results of Leaf Nutrient Sampling:

Leaf samples taken by growers allow them to assess the nutrient status of the plant and determine the proper level of fertilizer to apply. Soil samples are analyzed for pH, and the use of sulfur can reduce pH, and allow growers to reduce weed competition and the level of herbicide needed to control weeds. Growers use Wild Blueberry Fact Sheet No. 222 Leaf and Soil Sampling and are reminded in wild blueberry newsletters and at wild blueberry ICM training sessions on the proper techniques and timing of sampling.

Nutrient Management Program (Task 5,7, 8, 9, 10, 13)

(Task 7,8,13)Over the years, Maine has seen an increased awareness of non-point source pollution such as nutrients and sediments. It became essential to develop a statewide program to target one of the main nutrient contributors to the waters of Maine and implement education programs and best management practices to reduce the nutrient loads into our water bodies.

The law establishing a comprehensive Nutrient Management Program in Maine was passed in 1998. Surprisingly, the drive to regulate how manure is handled and used came from the farming community itself and a conviction amongst agricultural leaders that the best way to address the nutrient management issues was by being proactive about them.

The Program is still dealing with a lot of the implementation issues associated with any new Program. The main components of the Nutrient Management Law are now in place, covering many aspects needed to raise awareness and act on non-point sources issues.

The Maine Nutrient Management Law has two main components around which the different initiatives of the Nutrient Management Program gravitate. The first main component is the ban on winter manure spreading, effective December 1 of a calendar year to March 15 of the following calendar year. This will prevent spreading when the ground is snow-covered or frozen; at which time the potential for nutrients to leach into water bodies is the greatest. To

comply with the Law, producers will need to have either constructed a manure storage facility or identified suitable stacking sites where manure can be stored until it can be spread after the ban. The State realizes these requirements may pose a financial burden on Maine farmers. For this reason, the Department helped develop a Nutrient Management Grant Program and a Loan Program, intended to help farm operations comply with the Nutrient Management Law.

The Nutrient Management Grant Program funds were appropriated by the 119th Legislature. A total of \$2.5 Million was placed in a dedicated non-lapsing account, to facilitate the construction of new or retrofitting of existing manure storage and handling facilities on Maine's farms. A process for prioritization of projects and funds distribution has been developed. The Grant Program is currently in the sign-up phase, which ends December 15, 2000. Two information sessions were held in October and to date an estimated 600 applications were distributed with the help of NRCS, different statewide agricultural organizations and the SWCD offices. The Department of Agriculture is working in close collaboration with NRCS offices in Maine, who are helping the farmers fill out the needs and feasibility information for their proposed projects. The Department expects to have all \$2.5 Million distributed by February 2001, and has requested from the Legislature an additional \$5 Million.

A separate Nutrient Management Loan Program also makes available to the farmers a total of \$6 Million for financing the construction or improvement of manure and milk room waste containment and handling facilities and associated costs. The Department is working in collaboration with the Finance Authority of Maine, who administers the Loan Program. The Program is a low interest rate loan (3%) for a maximum amount per loan of \$350,000. There are currently five (5) closed applications for a total of \$490,287. Five (5) other applications are currently in the works for a total of \$583,492, which means a total of ten projects being financed by the Nutrient Management Loan Program alone. Only about 18% of the total funds are or will soon be utilized, which leaves a lot of funds available for additional projects. We suspect that future increased awareness of the Loan Program will lead more farmers to take advantage of this opportunity.

The second key element of the Nutrient Management Law is the Nutrient Management Plan. A Nutrient Management Plan is a management tool designed to evaluate the amount of nutrients needed versus those available on a farm, as well as excess nutrients that will need to be exported. The Plan also includes setbacks from sensitive resources and existing uses, erosion control BMPs and provisions for manure storage for a minimum of 180 days production of manure.

A farm operation is required by legislation to develop and implement a Nutrient Management Plan if:

- the farm confines and feeds 50 animal units or more at any one time;
- the farm utilizes more than 100 tons of manure per year, not generated on that farm;
- the farm is the subject of a verified complaint of improper manure handling (i.e. checked and confirmed by the Department of Agriculture) or
- the farm stores or utilizes regulated residuals

Nutrient Management Plans for most farms must be completed and approved by January 1, 2001, and the farmers have until October 1, 2007 to fully implement them. This time span between

development of a plan and full implementation allows farmers to arrange financing, buy equipment and build or upgrade storage and handling systems that may be needed to implement the plan. It is expected that those parts of the plans that do not require structural changes or major investments will be implemented as soon as the plan is approved.

The development and implementation of nutrient management plans will result in more efficient use of nutrients, including manure, on agricultural land, thus reducing non-point source pollution associated with agricultural operations and its impact on water quality.

(Task 10) Another significant provision of the Law is that these Nutrient Management Plans be developed by certified Nutrient Management Planning (NMP) Specialist. Certification as a Nutrient Management Planning Specialist requires an individual to pass a certification exam that was developed by UMCE and Department staff. As of November 9, 2000, a total of 119 people have been certified by the Department to write plans.

The University of Maine Cooperative Extension has made a major commitment to develop and deliver training sessions to prepare farmers, consultants and agency people for certification. As more people from the agricultural community become educated about nutrient management issues, this is likely to be reflected by an increase of Best Management Practices on Maine's farms and an overall reduction of non-point pollution.

(Task 5, 6, 9) Finally, another very important part of the Nutrient Management effort put forward by the Department is the Complaint Response Program. The Program investigates and addresses all agriculturally based complaints including odors, insects, improper manure handling, water contamination, improper disposal of farm wastes, cull potatoes and animal carcasses.

The Department cooperates with other agencies when complaints are associated with other regulated materials and activities on the farm. Complaints involving pesticides are referred to the Maine Board of Pesticides Control and those involving the use of sludge or regulated residuals are referred to the Maine Department of Environmental Protection. In addition, complaints found to involve animal welfare may be referred to the Animal Welfare Program and problems associated with wild animals may be referred to the Department of Inland Fisheries and Wildlife.

In connection with the Complaint Response Program, the Department assists new operations in developing Best Management Practices (BMPs) upon request and works with towns and the agricultural community to address issues associated with the Right to Farm Law, development and municipal ordinances.

Typically, the Complaint Response Program is initiated with a citizen or agency filing a complaint with the Department. The agricultural Compliance Officer is contacted by the office and given the basic information about the complaint.

The Compliance Officer then contacts the complainant for additional details and contacts the farmer to schedule a visit to the site. The visit schedule will vary depending on the emergency of the situation. The Compliance officer visits the site and usually meets with the farmer to discuss

the situation. While on site, the Compliance Officer evaluates the farm practices and determines whether they are following Best Management Practices (BMPs). If BMPs are being followed, all those concerned will be notified of that fact. If BMPs are not being used, the Compliance Officer will outline the appropriate BMPs needed to correct the problem. He will also encourage the farmer to seek technical expertise from the local Soil and Water Conservation District (SWCD)/ Natural Resources Conservation Services (NRCS) or Cooperative Extension (UMCE) office for the development and implementation of the prescribed BMPs.

After the visit, the Compliance Officer will prepare a written set of BMPs for that farm operation reinforcing those described at the farm. Depending on the changes to be made, the Compliance Officer will schedule one or more follow-up visits to ensure that BMPs are being implemented and keep in contact with the SWCD/NRCS or UMCE staff involved. This process is extremely efficient at correcting improper manure handling problems on these farms where a problem has been reported and verified. The suggestion to seek outside assistance to develop the prescribed BMPs also ensures that the structures put in place will be effective and certified by standards recognized by the Department. An overview of the activities subsequent to complaints in the Sheepscot watershed is detailed in the update on agricultural activities of that watershed. (See below)

Finally, in addition to the core provisions outlined above, the Nutrient Management Law also:

- Establishes a nutrient management review board whose duties include approving rule changes, hearing appeals on permit or certification decisions made by the Commissioner and making recommendations to the Commissioner on issues pertaining to Nutrient Management. There are 7 Board members, each representing a different aspect of the agricultural community.
 - Requires that livestock operations obtain a Livestock Operation permit from the Department of Agriculture if:
 - The operation is new with greater than 300 animal units or expanding to greater than 300 animal units
 - The operation meets the EPA definition of a Concentrated Animal Feeding Operation (CAFO)
 - The operation is a CAFO as defined by the Department of Agriculture.
- The operation plans on expanding beyond its land base or manure storage capacity.

Update on agricultural activities in the Sheepscot River Watershed. (task 4, 8, 9)

This is the progress that is being made on the Sheepscot River in regards to agricultural activities, one area of concern for the Atlantic Salmon Conservation Plan.

Lincoln-Knox County SWCD/NRCS received two calls from landowners that were contacted by the Department's Compliance Officer as a result of a complaint. One of these farms now has a conservation plan and has signed up under EQIP program. The other is in the process.

In regards to the overall USDA-NRCS Environmental Quality Incentives Program (EQIP): In Lincoln and Waldo counties there were 12 contracts approved for a total of \$75,065. The conservation practices addressed are manure storage and handling, 5, and erosion control, 7. Conservation plans have been written for these contracts bringing a total of 40 contracts in the Sheepscot. Out of these contracts this year several practices have been either completed or started. One manure storage project has been completed, 3 have been started and 3 are planned for next year.

The erosion control projects are in various stages. A forestland access road bridge was completed along with a livestock crossing which fenced out 5800 feet of Finn Brook. Livestock were fenced from the West Branch of the Sheepscot for about 125 feet. Another project almost completed is that of a livestock crossing for horses where a stream will be fenced from animal access.

Another project that the Knox-Lincoln Soil and Water Conservation District has been involved with is an Alternate Watering Facility Project through Section 319 funds. A project at Weeks Mills on the west branch needed permanent fence posts installed and a temporary fence as well as a water source from the barn or the River. This project is almost completed.

Another project in Whitefield is also completed. A pond was dug and fencing installed with water from the pond gravity fed to two tubs for the dairy cows.

A third site in Alna is almost completed but will not be finished until next year because of the weather.

There have been about 25 contacts with landowners in the watershed about various conservation concerns, but no other data is yet available on these concerns.

This concludes the 2000 report on progress made in the implementation of the agricultural goals and tasks in the Atlantic Salmon Conservation Plan. If you have questions, please contact Peter Mosher, Deputy Commissioner, Department of Agriculture, 207-287-3871.

Atlantic Salmon Commission

MAINE ATLANTIC SALMON COMMISSION

ATLANTIC SALMON CONSERVATION PLAN

Annual Report 2000

Goal # 4: *To make historical Atlantic salmon habitat areas accessible to migrating Atlantic salmon.*

Large woody debris jams have caused chronic canoeing and potential fish passage problems on Old Stream, a tributary to the Machias River, for a number of years. Six debris jam were removed between the Bear Brook and Guptil roads. Two smaller accumulations of debris were removed manually and four larger jams with the aid of dynamite. Project S.H.A.R.E. and the Department of Inland Fisheries & Wildlife shared the \$1,200.00 expense for dynamite and a demolition expert. Six people participated in the work, which occurred on August 15, 2000 and covered 10 miles of river. This work improved access from the Machias River to 89 units (100m²) of spawning habitat in Old Stream, which is contiguous with juvenile rearing habitat in 303 riffle and 227 run units.

The Atlantic Salmon Commission prepared the permits required for the removal of the East Machias Dam. The dam has not been an impediment to salmon passage since the mid 1970's. However, its removal created a better-defined channel below the dam and exposed natural substrate at the dam site. In addition, the Atlantic Salmon Commission contributed \$2,000 toward repairs on Chase Mills Stream Dam on the outlet of Gardner Lake on the East Machias. Our interest was to insure that sufficient water was available to allow the fishway to operate properly.

Goal # 6: *Eliminate risk to Atlantic salmon from recreational angling or poaching.*

Following two public hearings (Machias and Bangor) in November of 1999, the Interim Executive Director recommended to the Atlantic Salmon Board that the State of Maine ban angling for Atlantic salmon in the State of Maine. The Atlantic Salmon Board approved this recommendation, unanimously, and on December 28, 1999 this closure became effective. Therefore, it is unlawful to angle, take or possess any Atlantic salmon from all Maine waters (including coastal waters). Any salmon incidentally caught, must be released immediately, alive and uninjured. At no time should the Atlantic salmon be removed from the waters.

A portion of the Penobscot River in Veazie and Eddington was closed to all angling effective July 1, 2000. This emergency rule enacted by the Maine Department of Marine Resources was the result of enforcement personnel observing the capture of three Atlantic salmon in one evening by striped bass anglers. All three fish were released, but at least one of these fish was foul hooked and may have suffered significant injuries.

Goal # 9: *Reduce the effect of competing finfish species on Atlantic salmon.*

Progress on this task includes a report prepared by Inland Fish & Wildlife summarizing the literature on potential competing species and a review of their stocking within the watersheds. This report and recommendations from Atlantic Salmon Commission and Inland

Fisheries & Wildlife Fisheries Division staff on elements of a Memorandum of Agreement have been forwarded to the Director of the Bureau of Resource Management at IF&W. There is no current need for a similar Memorandum of Agreement with Department of Marine Resources.

Goal # 10: *To reduce the potential risks of pen- raised fish interbreeding and competing with wild Atlantic salmon.*

Weirs were installed on June 29, 2000 in the Dennys River and on May 22, 2000 in the Pleasant Rivers. These two weirs and the Narraguagus River trap, opened 28 April, intercepted 29 aquaculture salmon. The structures were operated through early October (Pleasant) and November (Narraguagus, Dennys). The East Machias River weir has been designed and a contractor has been selected through competitive bidding. A complete permitting package presented to the Maine Department of Environmental Protection will be processed by March 2001. A plan to protect the archeological resources in the vicinity of the project needs to be prepared before construction can begin in the summer of 2001.

Goal # 12: *To achieve optimal smolt production commensurate with the habitat's production capacity.*

Fry production is being optimized through a program that includes brood stock collection and river-specific rearing and stocking. Smolt production depends on the growth and survival of these stocked fry and natural reproduction. The approximately numbers of river specific-fry stocked in May and June 2000 and parr collected in 2000 for brood stock to be held at CBNFH are:

	Dennys	East Machias	Machias	Pleasant	Narraguagus	Sheepscot	Total
Fry stocked	96,000	197,000	209,000	--	252,000	211,000	463,000
Parr collected	131	126	262	119	258	160	1056

In addition, 304 adult Atlantic salmon reared for ASC by commercial aquaculture firms were released between October 16 and 25, 2000 into the Dennys (112), East Machias (16), and Machias (176) rivers. Based on provisional counts, these fish produced at least 93 redds. Emergence from these redds, juvenile survival, and contributions to future smolt cohorts will be evaluated.

Goal # 14: *To annually assess stocks of wild Atlantic salmon and accurately estimate populations in each of the seven rivers to allow adjustment to stocking requirements and management measures.*

In 2000, 23adult salmon passed the dam on the Narraguagus River. There were three adult salmon captured at the weir on the Pleasant River and one at the Dennys River weir. Preliminary fall redd counts in the 7 rivers were as follows: Dennys (60 all from released adults), E. Machias (10), Machias (23), Pleasant (1), Narraguagus (21), Ducktrap (2), Sheepscot (15). Juvenile salmon population assessments were conducted in all rivers, and data will be analyzed during the next several months.

Dept. of Conservation

Department of Conservation 2000 Annual Report for the ASCP

The Department of Conservation has historically had responsibilities under the ASCP for Seven Rivers involving three bureaus; Land Use Regulation Commission, Maine Forest Service and Bureau of Geology and Natural Areas. During calendar year 2000 our Bureau of Parks and Lands provided assistance in support of the goals of the ASCP. Each Bureau has summarized their 2000 accomplishments and status below.

LURC (Land Use Regulation Commission)

Goal #2 *Improve or maintain water quality for Atlantic salmon in each of the rivers.*

Project D: Set up nonpoint source pollution reduction programs targeting forestry, agriculture, and development activities to reduce water quality impacts from but not limited to: ...

Worktask 1 & 2 ***Ongoing***

In the summer of 2000, an intern completed another NPS inventory of the five downeast rivers within LURC's jurisdiction. This work built upon the prior year's survey and found the following:

Narraguagus River watershed	35 NPS sites documented
10 located along the public/private maintained ITS 81 snowmobile trail	
Machias River watershed	18 NPS sites documented
East Machias River watershed	7 NPS sites documented
Dennys	0 NPS sites documented
Pleasant	2 NPS sites documented

Implement enhanced enforcement efforts to address salmon issues (Project G.1 2 & 3) ***Ongoing***

ITS 81 Snowmobile Trail NPS mitigation

DOC staff and Narraguagus watershed council have finished interim mitigation on documented sites. Planning continues on the installation of permanent bridges and the rerouting of portions of the trail.

All NPS sites from 2000 inventory either permanently or temporarily restored, or scheduled for mitigation.

Cherryfield Foods

DOC and DEP continue to discuss the settlement of the 1999 sedimentation event into a tributary of the Pleasant River. No resolution to date.

Passamaquoddy water withdrawal

Passamaquoddy tribal officials and LURC staff have met to discuss the tribe's water withdrawals in downeast watersheds. The tribe has made a commitment to meet existing state permitting requirements for all of its irrigation sites.

Goal #5 *To protect, enhance, and restore high and moderate value wetlands.*

Project D: Ensure that all wetland permitting decisions take into account Atlantic salmon needs
Work Task 1 ***Ongoing***

Cherryfield Foods irrigation permit

The Commission authorized a permit to develop irrigation wells in the Machias River watershed that will replace direct water withdrawals. The Commission also authorized permits for the construction of irrigation ponds in the Pleasant, Machias, and Narraguagus watersheds.

Wyman Foods

The Commission authorized a permit for water withdrawal from the Narraguagus River watershed for frost protection and irrigation.

LURC Director has participated in all state-level water use management and planning meetings.

Maine Forest Service

Under the Atlantic Salmon Conservation Plan, Maine Forest Service has instituted ongoing efforts to address water quality issues in timber harvesting. The effort has been threefold; to increase outreach and education to the forestry community regarding forestry water quality issues generally and salmon in particular; to offer technical and financial assistance to salmon watershed councils through regular participation and MFS grants; and to conduct a sustained field effort to monitor timber harvesting, especially where there is the potential to impact critical salmon habitat.

Goal #1 To further protect important in-stream Atlantic salmon habitat and adjacent riparian areas

Project B: If significant progress is not made by December 2000 then initiate rulemaking to enhance protection of these areas through expanded enforcement of and modifications to NRPA, LURC Zoning standards and Municipal Shoreland Zoning.

Worktask 2

The 119th Legislature enacted P.L. 695 (An Act to Provide for Statewide Standards for Timber Harvesting in Shoreland Areas and to Modify Regulation of Stream Crossings), which authorizes the Maine Forest Service to develop rules addressing "performance standards for timber harvesting activities in areas adjacent to rivers, streams, ponds, wetlands and tidal waters", to be submitted to the legislature by January, 2002. If approved by the legislature, the rules will provide a unified set of forestry water quality standards statewide under MFS authority. MFS has convened an advisory group to help it develop a package for formal rulemaking.

Goal #2 Improve or maintain water quality for Atlantic salmon in each of the rivers.

Project D: Set up nonpoint source pollution reduction programs targeting forestry, agriculture, and development activities to reduce water quality impacts from but not limited to ...

Worktasks 1-4.

Maine Forest Service has conducted or presented part of 8 workshops focussing on forestry BMPs and riparian/water quality issues for foresters, loggers, and landowners. Of the over 230 participants, a high percentage work in the salmon watersheds, and 4 of the workshops directly

targeted the salmon watersheds. As a direct result of workshops in the midcoast region, at least five calls have been received from loggers requesting a field visit by an MFS forester on harvests they were about to begin in salmon watersheds. Additional workshops by MFS and others in other parts of the state have also heightened awareness of these issues by the forestry community.

The Forest Operations Notification system enables MFS to inform automatically each landowner who has submitted a harvest notification in a salmon watershed town of the possible presence of salmon habitat. Salmon habitat maps have been provided to USDA offices for use by foresters, loggers, and landowners. MFS distributes water quality information relevant to forestry on request and through a newsletter for consulting foresters. MFS's revision of the forestry BMP manual is still underway. MFS has increased education of its field staff with 4 internal workshops and accompanying materials on forestry BMPs, operations planning, and water quality regulations.

Goal #2 Improve or maintain water quality for Atlantic salmon in each of the rivers

Project D: Set up nonpoint source pollution reduction programs targeting forestry, agriculture, and development activities to reduce water quality impacts from, but not limited to ...

Work Task 5

MFS has participated actively in watershed council activities through regular attendance at council meetings. An MFS grant to the Downeast councils is in its final stages, facilitating the purchase of water quality monitoring equipment and other materials for restoration projects. MFS has provided information to councils on annual Community Forestry Grants, next available in early 2001, and will offer additional assistance to enable councils to take advantage of these grants. MFS participated actively and presented a display in the Sheepscot Watershed Open House, and presented the Sheepscot Forestry Workshop cooperatively with the council. One external grant proposal by MFS is still pending, but if received would increase technical assistance, potentially with council assistance.

Goal #2 Improve or maintain water quality for Atlantic salmon in each of the rivers

Project G: Enforce existing standards for buffering activities near streams. (DOC/DEP)

Work tasks 1-5

Maine Forest Service's field presence has been used to target notifications of harvesting activity in areas near mapped critical salmon habitat in the eight salmon watersheds. From January-October 2000, MFS Field Foresters and Forest Rangers inspected 62 harvest locations (32 Midcoast, 30 Downeast). Of these, 2 revealed water quality issues that were referred for enforcement to DEP. Several other locations presented opportunities for education and/or nonregulatory intervention, while many others showed that operators were aware of salmon concerns; none of these had impacts to water quality. In addition, information on forestry BMP use and effectiveness is being gained through Maine Forest Service's statewide BMP monitoring program, which will have amassed 9 months of field data on over 200 sites by year's end. Preliminary results suggest that a relatively low percentage of harvests statewide continue to create water quality problems, while a large proportion employ measures to protect water quality.

Bureau of Geology and Natural Areas

Goal # 3: To ensure water withdrawals do not adversely affect Atlantic salmon

Project C: Collect flow information for the Pleasant and Machias Rivers using accepted QA/QC plans in cooperation with agricultural interests.

Worktask 1 & 2

In July of 1999, the Maine Geological Survey signed a cooperative agreement with the U.S. Geological Survey to conduct a five-year study of low-flow for five eastern Maine rivers. The total cost of the study is \$275,000 half of which will be paid by the, U.S. Geological Survey the remainder coming from the State. State agencies contributing funds to the study are the Maine Geological Survey, the State Planning Office, the Department of Environmental Protection, the Department of Agriculture, Food and Rural Resources, the Department of Inland Fisheries and Wildlife, the Department of Transportation, and the Atlantic Salmon Commission. The plan has the following components:

- a) Identify 25 partial-record sites for data collection in eastern Maine based on a review of historical discharge data collection stations and a determination of points of priority existing and potential data needs. Install one additional continuous streamflow gage for use as a low-flow index site.
- b) Collect low-flow discharge data at the partial-record sites during the 4 years of field data collection, 2000 through 2003. Ten to twelve discharge measurements will be made during independent low-flow periods at each of the sites. In the event of an extreme low-flow event all 25 sites will be measured.
- c) Correlate the partial-record site low-flow data with concurrent flows at long-term gauging stations and estimate low-flow statistics for the partial-record sites. Preliminary results of these correlations, including estimates of low-flow statistics, will be available by January 2003.
- d) Develop regression equations to estimate low-flow statistics at ungaged, unregulated sites in Eastern Maine by calculating topographic, climatic, and/or geologic characteristics. A summary report explaining the study and estimation techniques would be published in year 5 of the study.

In November, 1999, the USGS hosted a meeting with interested parties to begin selection of the 25 partial-record sites and one site for a continuous streamflow gage in Eastern Maine. A proposed list of 55 potential sites was developed which was pared down to 27 plus some alternates based on geology and access (see accompanying figure). Site selection for the low-flow study was completed in early June, 2000.

Two rounds of base flow measurements were completed at all sites, once in early July and once in early August. The lack of extended periods of base flow during the summer hindered collecting additional measurements, but the study is still on pace for the needed minimum of 10 measurements at each site over the course of 4 years of data collection. During the measurement trips, some locations were found to be unsuitable for data collection. These sites were replaced

with other field selected locations. A final list of the 27 sites was sent out to interested parties on August 10, 2000. No additional changes are anticipated.

Reconnaissance of the best site to make a continuous long-term index gage is on-going, and will require additional field visits. It is now anticipated that the gage will be installed at one of the 27 sites next spring. Priority will be given to installing the gage at a site in the Narraguagus, Pleasant, or Mopang River basins if at all possible.

At the completion of 1 year of work, about 20% of the anticipated work for the 5-year project is completed.

Bureau of Parks and Lands

Although the Bureau of Parks and Lands is not specifically assigned responsibilities in the ASCP we participated in several efforts in 2000 which are relative to the goals of that plans.

In September, the Bureau of Parks and Lands granted a license to the Atlantic Salmon Commission allowing the Commission to erect and maintain a weir on the East Machias River at the bureau's Gaddis Pool boat access site in East Machias.

The bureau's Off Road Vehicle Division has been working with the International Paper Co. to identify sites where ATV trails currently cross salmon rivers on I.P. ownership by fording and planning for substitute trails and the construction of bridges to reduce the impact of the fords.

The bureau's Off Road Vehicle Division worked with the Land Use Regulation Commission to close and put to bed a snowmobile trail maintained by the bureau along the Narraguagus River in Beddington. ATVs and 4/4 trucks were using the trail and causing erosion and siltation in to the river.

Department of Environmental Protection

Maine DEP- Atlantic Salmon Conservation Plan Progress Report December 2000

Goal 1: To further protect important in-stream Atlantic salmon habitat and adjacent riparian areas.

Project B: If significant progress (on non-regulatory approaches to habitat protection) is not made by December 2000, then initiate rulemaking to protect these areas through a designation under NRPA, LURC zoning standards, and municipal shoreland zoning.

Recent progress has been made in non-regulatory approaches to habitat protection. These include the acquisition of river frontage and other lands, the establishment of a full time position with the Quoddy Regional Land Trust to facilitate future acquisitions, the funding of a full time position with Project SHARE to assist the watershed councils with funding opportunities, and the recent availability of money dedicated for land purchases and conservation easements. Given this progress, the SPO and the LWRC have not made a decision about the need for new regulatory solutions.

Goal 2: Improve or maintain water quality for Atlantic salmon in each of the salmon rivers.

Project A: Establish water quality baselines on parameters important for salmon production in each river.

The DEP has established a water quality monitoring project to see if salmon reproduction or productivity is limited by natural or man-made conditions found in the salmon rivers. Another goal is to establish a water quality baseline, so that environmental trends can be monitored. This project completed its second year in 2000. This is a collaborative effort that includes the watershed councils and the University of Maine's George Mitchell Center for Environmental and Watershed Research (formerly the Water Resources Institute). The water quality parameters that are monitored include pH, alkalinity, temperature, conductivity, major nutrients, turbidity and total suspended solids. The presence or absence of insect indicators are also recorded to see if pesticides or non-point source pollutants have impacted invertebrate communities.

In June 2000, the DEP hired a full time biologist to coordinate the water quality research, train volunteers, and maintain the database. This was also the first year that water quality data has been collected from Cove Brook and Tunk Stream. Both of these streams now have incipient watershed councils with trained water quality volunteers.

Acid rain and suspended sediments have been identified as two pollutants that might effect salmon survival. Results so far suggest that the eight salmon rivers have moderate pH (ranges 6-7), healthy alkalinity (ANC range 37-874 ueq/L), and no evidence of chronic acidification or other obvious kinds of pollution. While all of the rivers have some agriculture, forestry, road construction and other activities that might contribute to sediment erosion, none of the

stormwater samples taken to date indicates a significant amount of sediment transport (total suspended solids ranged from 0-19 mg/L).

Some of the Downeast rivers have a significant amount of aluminum (dissolved aluminum ranged 12-287 ug/L). The highest aluminum values tend to be found in the smaller tributaries, especially those draining boggy areas. Aluminum is found in freshwater in many different forms. Some forms of aluminum are known to be toxic to a wide range of plant and animal species, including salmon. Aluminum may be washed out of forest soils due to natural processes or due to acid rain. At the observed pH ranges in the salmon rivers, aluminum is not thought to be a significant problem for fish health. However, acidic episodes in the Downeast rivers have been documented by other studies. These rivers are most sensitive to acid rain during large storm events or spring melt periods when river chemistry is dominated by precipitation. Brief acidic episodes may lead to conditions where aluminum could be converted to toxic forms. The plan for 2001 is to re-focus the monitoring efforts on storm events during the spring thaw period. A summary of the first two years of data will be available by the end of the year.

Project D: Set up non-point source pollution reduction programs targeting forestry, agriculture, and development activities.

Several local organizations have made significant progress in assessing the non-point source pollution problems found within their watersheds. Project SHARE, the various county Soil and Water Districts, conservation groups and land trusts have been working with the watershed councils to obtain federal Clean Water Act Section 319 grants. These grants are administered by the DEP. A list of these projects, their partners and goals, and present status is given in Appendix A. To date, there are/or have been non-point source pollution projects in all 7 of the original salmon rivers. A watershed council is now being organized in Cove Brook. The ASC and DEP have been in contact with this group and they are being encouraged to submit grant proposals.

Watershed surveys are the first step of the “319 grant” process. New surveys have begun in the Pleasant, Narraguagus, and Denny’s Rivers watersheds. These surveys are sponsored by Project SHARE and are coordinated with the watershed councils. In addition to helping to prioritize riparian area restoration projects, these surveys are used to build awareness and public participation.

The Kennebec County Soil and Water District (SWCD) has begun a restoration project on the West Branch of the Sheepscot (319 project number 99-30). The West Branch currently fails to meet its water quality classification of Class AA due in part to the sedimentation of salmon spawning areas, high summer temperatures, nutrients from domestic and agricultural sources, and other problems. A survey of the watershed non-point source pollutants will help to eliminate eroding banks, restore riparian areas, implement agricultural and road stormwater BMP’s, and work with town CEO’s to eliminate residential sources of bacteria and nutrients. Water quality will be monitored in the West Branch to make sure it attains its water quality criteria.

The Waldo County SWCD and the Coastal Mountains Land Trust have begun a restoration of approximately 1,750 linear feet of a tributary of the Ducktrap River (project number 2000R-42).

Bio-engineered stream banks, riprap, and plunge pools will be used to reduce sediment transport that is threatening Atlantic salmon spawning and rearing areas. This project is scheduled to be completed in 2001.

By the end of this year, the Washington County SWCD and the Narraguagus Watershed Council are expected to complete the stabilization of 9 sites in Cherryfield that are effecting Atlantic salmon rearing habitat on the Narraguagus (project 2000R-41A). The amount of sediment that was being lost from these sites has been estimated as 115 tons per year.

The DEP Land Resources Regulation (LRR) staff is continuing their on-going training for foresters and construction contractors on best management practices for erosion control. LRR staff are also involved in annual training exercises for foresters, planners, town CEO's, and engineers with respect to regulatory requirements for wetland protection, land use, shoreland zoning, and management of stormwater.

Project E: Set up a pesticide monitoring program for each river to account for type, amount, timing, and geographic location of pesticides used in each river watershed.

The Bureau of Pesticide Control (BPC) has identified the pesticides most commonly used in blueberry and cranberry culture and in forestry. To date, BPC research efforts on the salmon rivers has concentrated on eleven of the most common pesticides that are used in commercial blueberry production. The BPC publishes annual reports on their findings.

Due to the expanses of blueberry fields that are sprayed every year, blueberry culture is thought to be the most significant source of pesticides in the salmon river watersheds. Both baseflow and stormwater samples from the salmon rivers are screened for the eleven most commonly used pesticides. To date, low levels of pesticide contamination has been found in most samples of the Narraguagus, Pleasant, Mopang, and Old Stream whenever samples are taken downstream of blueberry fields. With few exceptions, the pesticide that shows up in routine screening is hexazinone (Velpar). This herbicide occurs only in very low concentrations (0-3.8 parts per billion) and is known to have very low toxicity to fish or other animal life. According to EPA and state of Maine drinking water standards, these levels are acceptable in drinking water. In general, the concentration of hexazinone in the Downeast rivers is less than that found in groundwater in the same area. The BPC hypothesizes that groundwater is the primary source of this herbicide in these rivers. Trace amounts of two other pesticides (the insecticide Phosmet and the herbicide Terbacil) are also occasionally found in the Downeast rivers.

In contrast, forestry cuts tend to be smaller and more spread out than are the blueberry barrens. Insecticides are not generally used on forestry lands. The uses of insecticides are restricted to times of serious outbreaks of tree pests, such as the spruce budworm or the hemlock looper. There have been no recent outbreaks or insecticidal sprays used in the salmon rivers. On the other hand, herbicides are commonly used to encourage the growth of softwood species by eliminating competition from hardwoods. These sprays are generally only used once on a given cut (perhaps once in a 40 year forestry cycle). The BPC has identified three herbicides that are commonly used. According to International Paper records examined by the BPC, the area that is

sprayed in a given year within the salmon river watersheds is a tiny fraction of the area and pesticide volume that are used in blueberry culture.

The BPC has identified 21 pesticides that are used in cranberry culture. Due to the recent depression of the cranberry market, no new cranberry beds are being built at this time. The DEP permit process has encouraged clay liners under cranberry beds and closed loop irrigation systems that tend to prevent the loss of contaminated water to groundwater or surface water.

In year 2000, the DEP funded a research project at the University of Maine, Dept. of Biochemistry, Microbiology, and Molecular Biology to investigate the potential for some pesticide formulations to effect the endocrine system of salmon. Pesticides generally have spreaders or mixers with the active ingredient. Recent studies have shown that some of the “inert” ingredients may have significant effects on non-target species. For instance, the nonylphenols (found in many pesticide formulations as a spreader and mixer) are known to act as endocrine disruptors in salmon. As part of this study, the Narraguagus River will be exhaustively screened for organic pollutants. In addition, four of the most common pesticide formulations (diazinon, hexazinone, Malathion, and methoxychlor) will be screened for estrogen-like behavior. The results of this work are expected to be available by summer 2001.

Goal 3: To ensure that water withdrawals do not adversely affect Atlantic salmon.

The DEP has been part of a task force to investigate the irrigation options that are available to blueberry growers and will be the least disruptive to salmon. A water use management plan is currently being drafted and is under agency review.

Goal 5: To protect, enhance, and restore high and moderate value wetlands:

Project B: Maintain a registry of potential restoration projects from information provided by applicants in need of mitigation projects within the watersheds:

The DEP has on-going programs to protect existing wetlands and to identify degraded moderate or high value wetlands that can be restored. To date, all of the degraded wetlands that have been identified are in coastal areas and do not effect salmon habitat.

Project D: Ensure that all wetland permitting decisions take into account Atlantic salmon needs.

The DEP has been provided with OGIS maps of the salmon watersheds showing salmon spawning and rearing habitat. All development projects that need DEP permits and that may effect salmon habitat are reviewed by DIFW and ASC. Comments from these agencies are considered before any permit decision is made. Some permits may be issued with special conditions to protect salmon. Watershed councils are also advised of development projects in their areas that require Department permits.

Project E: Continue education and compliance with current wetland regulations:

The DEP is an on-going participant in the training and certification of town CEO's.

NONPOINT SOURCE PROJECTS SUMMARY

Atlantic Salmon Conservation Plan

By: Norm Marcotte, MDEP November 15, 2000

This is a summary of the NPS Pollution Control Projects that benefit rivers designated in the Maine Atlantic Salmon Conservation Plan that were active in 2000. The last line of each summary indicates status of the project. Funding for the NPS Grants program is administered by DEP. Refer to reports from the project sponsors for more specific information.

#96-08 Livestock Exclusion./ Alternative Watering Demonstration

Sponsor: Knox-Lincoln Soil & Water Conservation District

Purpose: This project will demonstrate to producers and other landowners raising livestock 4 different livestock exclusion / alternative watering facility types and methods of revegetating riparian areas where livestock previously had free access to the river or feeder streams in the Sheepscot River watershed.

Planned Duration: 24 months 4/96 to 3/98

Grant: \$22,460, Match: \$14,980., Total: \$37,440

Project activity completed. The final project report needs to be completed.

#99-01, "Sheepscot Watershed Project, Phase II"

Sponsor: Sheepscot Valley Conservation Association

Purpose: To establish conservation easements to protect riparian areas critical to salmon fisheries; promote adoption of best management practices; develop and broaden local awareness and participation in protecting the Sheepscot River watershed; and implement conservation actions contained in the Maine Atlantic Salmon Conservation Plan for reducing NPS pollution.

Planned Duration: 24 months 4/99 to 3/2001

Grant \$80,350; Match \$64,400; Total \$144,750

Project actions are proceeding as planned

#99-13, "Watershed Surveys of Nonpoint Sources in the Narraguagus and Pleasant Rivers"

Sponsor: Project SHARE

Purpose: The purpose of this project is to: (1) Conduct NPS surveys of the Pleasant and Narraguagus River watersheds to identify important NPS pollution sources; (2) Build local support for a community based watershed management project through greater community awareness with the watershed councils; and (3) protect Atlantic salmon habitat.

Planned Duration: 4/99 to 3/2000

Grant \$46,420; Match \$ 31,700; Total \$78,120

Project was completed

#99R-30 Water Quality Restoration on the West Branch of the Sheepscot River

Sponsor: Kennebec County SWCD

Problem: The West Branch fails to attain Class AA standards for dissolved oxygen and bacteria. Atlantic Salmon populations have declined within the entire Sheepscot river, in part, due to sedimentation of spawning habitat areas, high water temperatures and other habitat factors. Atlantic Salmon in the Sheepscot river are managed as a “threatened species” to promote recovery under the Maine Atlantic Salmon Conservation Plan.

Goal: Restore water quality the West Branch to attain AA classification and support high quality aquatic habitat for indigenous species, including Atlantic salmon.

Solutions: Identify sources of sediment, nutrients, and bacteria in the watershed and inadequate riparian areas; provide technical and cost sharing assistance to prompt installation of roadside runoff BMPs to abate sedimentation; protect or restore riparian buffers; prompt installation of agricultural BMPs with USDA-EQIP or 319 funds; work with town CEOs to abate residential nonpoint sources.

Monitoring: SVCA will continue water classification attainment monitoring and conduct localized monitoring to determine other important pollutant sources and demonstrate water quality response to installation of BMPs at 1 or 2 key sites nested within the watershed. Planned, Phase II, 3 years of post-implementation monitoring.

Duration: 7/99 to 12/01

Cost Estimates: Phase I - 319 grant 319 \$254,070; total with match \$413,000

Project actions are proceeding.

#2000R-20, “Dennys River Watershed Survey”

Sponsor: Project SHARE

Purpose: To survey the Denny’s River watershed, identify important NPS pollution sources, build local support for a community-based watershed management project, and protection of Atlantic Salmon habitat.

Duration: 12 months, 4/00 to 4/01

Grant: 18,950; Match: 12,931; Total 31,881

Project actions are proceeding

#2000R-42, “Ducktrap River Tributary Restoration Project”

Sponsor: Waldo SWCD and Coastal Mts Land Trust

Purpose: Reduce sediment entering the Ducktrap River by using bio-engineered plantings, rip rap, and plunge pools to restore about 1750 feet of a tributary stream. The stream restoration will stop significant gulley erosion and reduce sedimentation of the high value Atlantic Salmon spawning and nursery habitat that is immediately down stream in the Ducktrap River. NRCS will provide before and after estimates of the amount of soil loss in the streambed and sediment entering the Ducktrap River from the stream.

Duration: 10/00 to 10/02

WIFAP Program: 319 Grant 60,000; State Grant 40,000; local match 20,040; total 120,040

Project was developed, contracted, then commenced in 10/00

#2000R-41A Pollutant Load Reduction, Narraguagus River @ Cherryfield)

Sponsor: Washington Cty SWCD

Purpose: Implement conservation practices to abate erosion and sedimentation at about 9 sites to effectively reduce polluted runoff that is degrading Atlantic Salmon spawning and rearing habitat in the Narraguagus River in the Cherryfield area. Estimated annual soil loss calculations show that this project will prevent total soil loss of more than 115 tons per year. Indigenous Atlantic salmon are considered threatened in the Narraguagus river system. The river is designated in the: (a) "Maine Atlantic Salmon Conservation Plan for Seven Maine Rivers" (March, 1997) as one of 7 rivers with a distinct population segment of atlantic salmon that is considered threatened; and (2) "Maine Nonpoint Source Priority Watershed List" as a high priority river because atlantic salmon as considered threatened.

Duration: 12/00 - 1/02

WIFAP Program: 319 Grant 46,200; State Grant 30,800; local match 9,000

Project was developed. Expect approval & Contract to be completed in 12/2000.

#2001R-21 Narraguagus River Watershed Management Plan

Narraguagus Watershed Council & SHARE

Purpose: The goal of the Narraguagus River Watershed Management Plan is to develop a comprehensive, locally supported NPS strategy to protect and enhance the quality of the Narraguagus River Watershed. This will include characterizing water quality using existing data, providing water quality information to make decisions regarding Atlantic salmon habitat, providing information that will guide use of best management practices, and evaluating the effects of restoration projects on water quality.

Duration 3/01 to 3/03

319 grant 65,000; local match 43,300, total 108,300

Project was developed under the FFY 2001 NPS Grant RFP, accepted by DEP, expect the contract to be done in 3/01

#2001R-, Sheepscot Watershed Project, Phase III

Sheepscot Valley Conservation Association

The project will continue the efforts of the SVCA in preventing/controlling non-point sources of pollution in the Sheepscot River. The SVCA will continue the water quality monitoring program, the coordination of restoration efforts, the education of landowners and the acquisition of easements creating protected riparian buffers. The SVCA will continue to work cooperatively with area landowners, other organizations and government agencies during this phase of the project.

Duration 4/01 to 4/03

319 grant 107,964; local match 157,700; total 262,664

Project was developed under the FFY 2001 NPS Grants RFP, accepted by DEP, expect the contract to be done in 3/01

Year 2000 Progress Report for DEP Water Quality Monitoring Plan Maine Atlantic Salmon Rivers

Project Objectives:

The DEP has established a water quality monitoring program to see if salmon reproduction or productivity is limited by natural or man-made water quality conditions found in the salmon rivers. Another goal is to establish a water quality baseline, so that environmental trends can be monitored. This project completed its second year in 2000. This is a collaborative effort that involves DEP, the watershed councils, and the University of Maine's George Mitchell Center for Environmental and Watershed Research (formerly the Water Resources Institute). The water quality parameters that are monitored include pH, alkalinity, temperature, conductivity, major nutrients, turbidity and total suspended solids. The presence or absence of insect indicators is also recorded to see if pesticides or non-point source pollutants have impacted aquatic communities. The Pleasant and Narraguagus Rivers were monitored for pesticide residues.

Progress in Year 2000:

In June 2000, the DEP hired a full time biologist to coordinate the water quality research, train volunteers, and maintain the database. Volunteers from the watershed councils collected at least 2 summer baseflow water samples from sample sites on the Dennys, East Machias, Machias, Pleasant, Narraguagus, Ducktrap, and Sheepscot Rivers. The number of sample sites ranged from four (Dennys and Ducktrap Rivers) to eleven (Machias River). This was also the first year that water quality data have been collected from Cove Brook and Tunk Stream. Both Tunk Stream and Cove Brook now have incipient watershed councils with trained water quality volunteers. Three summer baseflow samples were collected in Tunk Stream at four sample sites. Field data (pH, temperature, and dissolved oxygen) were collected from Cove Brook twice this fall. Cove Brook also has four sample sites.

The Year 2000 field season was also the first time that the Maine salmon rivers were sampled during storm events. Stormwater was collected from the Dennys, Pleasant, Narraguagus, Ducktrap, and Sheepscot Rivers, and from Tunk Stream. In addition to field measurements (water temperature, pH and dissolved oxygen), storm samples were analyzed for total suspended solids and turbidity. Summer dryness and sample protocol demands (at least an inch of rain) prevented stormwater sampling on the Machias and East Machias Rivers. Additional storm even samples were taken from the Pleasant and Narraguagus Rivers for pesticide analysis. The Board of Pesticides Control also conducted a study of pesticide contamination of surface and groundwater in the Pleasant and Narraguagus River watersheds.

Significant Findings:

Acid rain and suspended sediments have been identified as two pollutants that might effect salmon productivity. Results so far (see Tables 1-8) suggest that the eight salmon rivers have moderate pH (range 6-7), healthy alkalinity (ANC range 37-874 ueq/L), and no evidence of chronic acidification or other obvious kinds of pollution. While all of the rivers have some agriculture, forestry, road construction and other activities that might contribute to sediment erosion, none of the stormwater samples taken to date indicate a significant amount of sediment transport (total suspended solids ranged from 0-19 mg/L). The issue of sediment transport will be re-examined in the spring of 2001.

The baseflow chemistry for sample years 1999 and 2000 is very similar. The summer of 1999 was fairly dry (i.e., a “moderate drought” based on the Palmer Drought Index, see on-line NOAA weather summaries for Maine), while the summer of 2000 was cool and wet (“wetter than average”). While the data base (Tables 1-8) still do not have about half of the Year 2000 data, the available data suggest that there was a slight dilution of the baseflow chemistry compared to drought years. Preliminary analysis also shows that the baseflow chemistries for some tributaries are very different compared to the river mainstem. For instance, the West Branch of the Narraguagus is more acidic and more humic than the main stem. Aluminum levels are also higher. Rocky Brook, a tributary of the East Machias, is the most acidic of any of our sample sites and has the highest aluminum. Trout Brook on the Sheepscot is more acidic than the main stem, and is more similar to the Downeast rivers than it is like the rest of the Sheepscot.

Some of the Downeast rivers have a significant amount of aluminum (dissolved aluminum ranged 12-287 ug/L). The highest aluminum values tend to be found in the smaller tributaries, especially those draining boggy areas. Aluminum is found in freshwater in many different forms. Some forms of aluminum are known to be toxic to a wide range of plant and animal species, including salmon. Aluminum may be washed out of forest soils due to natural processes or due to acid rain. At the observed pH ranges in the salmon rivers, aluminum is not thought to be a significant problem for fish health. However, acidic episodes in the Downeast rivers have been documented by other studies. These rivers are most sensitive to acid rain during large storm events or spring melt periods when river chemistry is dominated by precipitation. Brief acidic episodes may lead to conditions where aluminum could be converted to toxic forms.

Stormwater samples from the Pleasant and Narraguagus Rivers were analyzed for a suite of pesticides that are used in the culture of blueberries. These pesticides are Captan, Chorothalonil, Propiconazole, Diuron, Hexazinon/ Hexazinone metabolite B, Terbacil, Azinphos-methyl, Phosmet, Diazinon, Malathion, and Methoxychlor. Only Hexazinone was detected and only in trace amounts (0.54-3.37 parts per billion (ppb)). The highest concentration was found in an irrigation pond that is surrounded by blueberry fields (Ethyl Smith Pond on a tributary to the Narraguagus). The EPA-Health Advisory Level for Hexazinone in drinking water is 400 ppb (EPA, Summer 2000).

So far, there is no clear indication in the insect data that shows that pesticides have effected invertebrate communities (see Tables 1-8). Virtually all sites that have appropriate bottom substrate (gravel or cobble) have diverse invertebrate assemblages. A few exceptions (e.g., the Crooked River, a tributary of the Machias that drains some blueberry lands) sometimes lack stoneflies or mayflies in spite of having appropriate substrate. This is a topic for further analysis and future effort.

Also in 2000, the Board of Pesticide Control, Maine Dept. of Agriculture, conducted an independent study of herbicide contamination of salmon rivers and groundwater. This study had two parts, a study of pesticides found in first order streams and springs in the Pleasant and Narraguagus Rivers, and a study of pesticide drift during application on blueberry fields. Tributaries of the Pleasant and Narraguagus Rivers were screened for the same suite of blueberry pesticides (see above). In a report issued in November 2000 (see Appendix 1), the BPC study found only Hexazinone in the Pleasant River (range Not Detected (ND)–1.4 ppb in tributaries and ND-3.08 ppb in springs). Because

Hexazinone is water-soluble and is found in higher concentrations in springs, groundwater is thought to be an important source of Hexazinone contamination in surface water.

The same BPC report summarizes the drift studies. Hexazinone and Phosmet were found in tributaries on the Narraguagus (ranging ND-2.65 ppb and ND-0.52 ppb respectively) during pesticide application. The same pesticides were found in drift studies on the Pleasant (ranging ND-0.97 ppb Hexazinone, and ND-0.10 ppb Phosmet). Drift targets on land detected as much as 21,978 nanograms (ng)/filter (less than 0.01 the application rate recommended for blueberries grown on sandy soils). In general, the greatest concentrations were found on the targets nearest the agricultural fields (within 300 ft). The results of the drift study indicate that pesticide drift is also a significant source of low level stream contamination.

The traces of the herbicide Hexazinone Narraguagus and Pleasant Rivers are well below concentrations that are known to be harmful to aquatic life. Since Phosmet is an organophosphate insecticide, its toxicity is greater. While it is relatively “non-toxic” to mammals and birds, Phosmet is highly toxic to fish and invertebrates. Acute poisoning is expected at 230 ppb for rainbow trout and 5.6 ppb for *Daphnia magna*. This latter concentration is more than 50 times greater than that detected in the Pleasant River. However, due to the sampling intervals (monthly or twice monthly), peak pesticide concentrations could be overlooked. Also, potential reservoirs of pesticides in sediments or in biological tissues may be more important than ambient levels in the water. New evidence from other parts of the country indicate that trace concentrations of some pesticides, or their “inert ingredients” that are used as fillers or spreaders, may cause disruption of fish endocrine systems. Thus, even trace amounts in water may be a significant concern. In 1999, the DEP funded a study at the U of Maine to look at potential estrogen disruption or estrogen mimics in blueberry pesticide formulations. The results of this study should be available in 2001.

Plans for Next Year:

To date, the analysis of the Year 2000 water quality samples has not been completed. Tables 1-8 show results for only about half of the samples that were collected this year. A review of the completed data will be necessary before a Year 2001 sample protocol and budget can be completed. However, given the partial analysis above, it is possible to conclude that some goals are close to being achieved while other issues clearly need more attention.

The characterization of the baseflow chemistry of the rivers is fairly complete. The rivers that were added to the sampling program in Year 2000 (Tunk Stream and Cove Brook) are the exception. Some baseflow sampling will be useful next year due to the expected year-to-year variations in weather.

The water quality monitoring program is just beginning to address the influence of stormwater on aluminum chemistry and the influence of stormwater on sediment transport. These two issues will be further addressed in the 2001 field season. Aluminum will be fractionated into different components, especially the “exchangeable aluminum” that is most relevant to determining toxicity. Sediment loads are expected to be greater in the “wet seasons” compared to the summer field seasons.

On the advice of the Washington County Soil & Water Conservation District, we plan to make a special effort to study pesticide residues in Mopang Stream next year. Blueberry fields around Mopang

are located in soils that are less sandy than those in the Narraguagus/Pleasant River watersheds. We plan to study pesticide residues in stormwater runoff from agricultural soils that are tighter than the Cherryfield/Deblois fields.

In cooperation with the Board of Pesticides Control we hope to conduct more drift studies in 2001. One possible goal will be to document the effectiveness of different forested buffers in minimizing surface water contamination. This might lead to the development of agriculture BMP's that would improve surface water protection during agricultural spraying. Another possible goal would be to use automatic samplers downstream of pesticide spray sites to decrease the sample interval and improve our ability to detect peak concentrations.

This progress report was written by Mark Whiting, ME DEP, Bangor Regional Office.
207-941-4566

A:salmonsummary Draft 1/2/2001

Department of Inland Fisheries & Wildlife

ASCP ANNUAL REPORT

DEPARTMENT OF INLAND FISHERIES AND WILDLIFE

The Department of Inland Fisheries and Wildlife has played a variety of roles in the implementation of the Atlantic Salmon Conservation Plan. These roles include the enforcement of Atlantic salmon and inland fishing regulations on the 7 Down East Rivers (Goal # 6, Project A), outreach to anglers to increase awareness of and compliance with fishing regulations designed to protect Atlantic salmon (Goal #6, Project C), actions to reduce by-catch of salmon from riverine commercial fishing activities (Goal #7, Project B), and the development of recommendations to reduce the effects of competing fin fish species on Atlantic salmon populations (Goal 9, Project A). A summary of the results of these projects is given below.

The Warden Service conducted regular checks of salmon holding areas and other river reaches on the 7 Downeast Rivers as a part of regular field patrols. This involved 970.5 hours of patrol work and 480 angler checks by September 30. No Atlantic salmon violations were detected. Special enforcement work was carried out by a seasonal wardens funded from a Heritage Fund Grant that resulted in 3 individuals charged with gill netting on the Sheepscot River. Additional surveillance work is being carried-out in areas where pen reared river specific strains of salmon were stocked by the Atlantic Salmon Commission.

The angler education project produced and distributed with the assistance of the Atlantic Salmon Federation, watershed councils, and other interested groups 500 educational signs, 5000 posters, and 10,000 wallet cards to help anglers identify salmon parr and smolt. A section was added to the Department's Open Water Fishing Regulations booklet outlining the responsibilities of the Atlantic Salmon Commission, the status of Atlantic salmon, currently fishing regulations, and information on how to recognize young salmon. An article was also published in the Department's magazine about the Conservation Plan that was prepared by the ASC.

Applications to take suckers and alewives commercially were review to ensure no Atlantic salmon by-catch mortality.

A report summarizing current stocking programs for all fin fish in each of the 7 Downeast Rivers, along with available information regarding potential interactions between species stocked in each river, and recommendations to minimize impacts is in the final stage of drafting and will be submitted to the Commissioners of IF&W, DMR, and the ASA in November 2000.

Department of Marine Resources

Maine Department of Marine Resources
200 Annual Report - Atlantic Salmon Conservation Plan
December 5, 2000

The Maine Department of Marine Resources has primary responsibility for implementing and monitoring activities designed to minimize potential adverse impacts of aquaculture on river specific Atlantic salmon in the downeast salmon rivers. In addition, DMR monitors and evaluates various marine and estuarine fishery activities that could potentially impact river specific Atlantic salmon. The following report summarizes activities undertaken during the past year (January 1-December 31, 2000):

Elver Fishery: As in previous years, the DMR continued to monitor the elver fishery to determine if Atlantic salmon bycatch was occurring in this fishery. Entry into the year 2000 elver fishery was capped at 827 individuals. Holders of elver licenses in 1999 were eligible to obtain licenses in 2000. Of the 741 eligible license holders in 1999, only 611 elected to renew their licenses in 2000. 86 additional names were drawn by lottery to fill out the potential maximum allowable license limit of 827. Of the 86 successful lottery winners, only 56 elected to obtain licenses in 2000. The total number of license holders in the 2000 elver fishery was 667. Because all license holders were limited to a maximum of two units of gear (one fyke & one dip net or two fyke nets) or their historic gear amounts, whichever was less, the total gear licensed was limited to 380 dip nets and 755 fyke nets. This was a 12.5 % and 6% reduction in dip nets and fyke nets, respectively, over the 1999 season when 434 dip nets and 804 fyke nets were licensed to fish in Maine tidal waters. The length of the 2000 fishing season remained the same as in 1999 (March 22- May 31) which represented a three week reduction in fishing opportunity over the 1998 and previous fishing years. Poor markets in 1999 continued to plague the fishery in 2000, resulting in reduced fishing effort statewide. Elver prices paid to harvesters opened at \$15.00 per pound and dropped to \$10.00 per pound as the season progressed. DMR Marine Patrol Officers and biological staff checked the downeast salmon rivers for the presence of elver nets during the open season. Due to poor market conditions which deteriorated as the season progressed, many fishermen pulled their nets or stopped fishing before the season ended on May 31. Since 1998, all fyke nets were required to have a ½ inch bar measure excluder panel at the net entrance to prevent bycatch of nontarget species. The following numbers of fyke nets were observed in the downeast salmon rivers during the 2000 elver season: Dennys (0), East Machias (4), Machias (4), Pleasant (0), Narraguagus (0), Ducktrap (0), and Sheepscot (0). Gear restrictions in the Sheepscot river allow only dip nets to be used above the U.S. Route 1 bridge and on the Pleasant river, only dip nets are allowed to be used above the main river bridge in Addison from May 1 to December 1 annually. No incidental catch of salmon was reported or observed in the elver fishery on the downeast salmon rivers in 2000. All fyke nets inspected were in compliance with the required excluder panel.

Sucker, Alewife, and Smelt Fisheries: Fisheries which could incidentally catch adult salmon or smolts on the downeast salmon rivers were monitored with the following results:

Dennys River-An alewife fishery occurs at the outlet of Meddybemps Lake near the headwaters of the Dennys River and upstream of Atlantic salmon spawning and juvenile production habitat. This fishery is permitted by the Department of Inland Fisheries and Wildlife based on recommendations from DMR. The alewife resource in the Dennys River has been relatively small in recent years and has not attracted much interest from the commercial harvest sector. During the 2000 fishing year, no commercial alewife permits were issued for the Dennys River and no fishery occurred.. There were no commercial rainbow smelt or sucker fisheries in the Dennys river in year 2000.

East Machias River- The commercial alewife fishery was operated at the outlet of Gardner Lake in East Machias. This fishery is located on a tributary to the East Machias River upstream of Atlantic salmon spawning and nursery habitat. An alewife trap is installed in Gardner Lake at the exit of a fishway in the Gardner lake dam. No salmon were observed at the alewife trap site. No commercial fisheries for suckers occurs in the East Machias River. Occasional gill netting of rainbow smelt occurs in the East Machias estuary, but this fishery closes on April 30, therefore the potential for smolt bycatch is minimal as most salmon smolts emigrate in May and June.

Machias River- There are no commercial alewife or sucker fisheries on the Machias River. Limited commercial gill net fisheries for rainbow smelt close on April 30, minimizing the possibility of salmon smolt bycatch.

Pleasant River- No commercial alewife or sucker fishery occurred in the Pleasant River in 2000. An estuarial rainbow smelt gill net and bag net fishery occurs in the winter and early spring months (the fishery closes on April 30), which minimizes the possibility of salmon smolt bycatch.

Narraguagus River-The town controlled commercial alewife fishery was active in 2000. The fishery occurs at the Cherryfield dam just upstream of the salmon trap operated by state and federal personnel. The alewife trap is attached to the upstream end of the salmon trap. While salmon are retained in the state operated salmon trap, alewives pass through the 2" bar spacings into the upstream alewife trap and removed by dip net.

There is no commercial sucker fishery in the narraguagus River. An estuarial gill net and hook and line rainbow smelt fishery occurs in winter and early spring. This fishery closes on April 30, which minimizes the possibility of smolt bycatch.

Ducktrap River- There were no commercial sucker or rainbow smelt fisheries in the Ducktrap River. The commercial alewife fishery continued to be closed for the sixth consecutive year due to the low abundance of alewives.

Sheepscot River- There were no commercial sucker or rainbow smelt net fisheries in the Sheepscot River in 2000. The town controlled commercial alewife fishery occurred at the Coopers Mills fishway and was extensively monitored by enforcement and biological staff . No salmon bycatch was observed or reported in this fishery.

Education/enforcement /outreach activities- One of the major elements in the Maine Salmon Conservation Plan calls for increased public education, enforcement , and outreach activities. To address that need, 300 Atlantic salmon alert posters were placed at fishing access sites in

estuaries and head tide areas of salmon rivers to encourage recreational anglers to voluntarily avoid fishing in areas where salmon bycatch may potentially occur. Effective July 1, 2000, the area below the Veazie Dam and downstream to the Bangor Water District pipeline was closed to all fishing to protect Atlantic salmon from bycatch mortality associated with recreational fishing for striped bass, American shad, and other species.

DMR hired a seasonal enforcement officer (a retired Marine Patrol Officer) to augment recreational fishing enforcement efforts of full time enforcement personnel.

The seasonal enforcement officer started his field work on May 22 and ended on September 23. Primary enforcement efforts were concentrated in the area of Division I from the Kennebec River to the St. George River. Also, for 38 days he checked the rivers in Division II (eastern Maine from Rockland to Eastport). Seasonal enforcement efforts totaled 374 hours.

In addition to seasonal enforcement efforts, full time officers in Division I logged the following number of hours worked on Atlantic Salmon:

York County Rivers	82.5 hours
Kennebec/Andro	18.0 hours
Sheepscot/Dam	11.0 hours

Division II officers regularly checked the Penobscot River due to the high amount of activity in this area. They received complaints from the Salmon Clubs that striped bass fishermen were foul hooking Salmon. Once the DMR's regulatory closure went into effect on July 1, 2000, the area became deserted. The river continued to be checked over the next few months, with no activity being reported. Initially, the DMR closure was promulgated as an emergency rule, effective for 90 days. The rule was subsequently promulgated as a regular rule, which will remain in effect unless repealed or superceded.

Division II officers also checked fishermen on the Pleasant River and the Narraguagus River. There were reports that American shad fishermen caught salmon on the Narraguagus River. Followup investigations and continued patrol activities did not find any violations. The East Machias and Dennys Rivers were checked on a regular basis with no complaints, and no activity being reported. Marine Patrol officers also checked the Passagassawaukeag and Duck Trap Rivers, with no activity reported.

Enforcement hrs Division II

106

Grand total of Salmon Enforcement hours for both Divisions: 591.5

Fish Health- One of the identified threats to wild salmon stocks is the potential for transmission of diseases from farmed salmon to wild fish. To address this concern, DMR continued to require adherence to fish health rules passed in July 1999 to govern the transfer and stocking of all salmonids into coastal waters. Fish health inspections are required prior to the introduction of all fish into Maine coastal waters. In year 2000 over 6000 fish were examined for pathogens of regulatory concern. No ISAV was detected using currently approved diagnostic procedures, nor were other diseases of regulatory concern detected among lots of fish transferred to marine waters of Maine.

Following is a summary of the fish health inspections carried out in the fall of 1999 and the spring of 2000:

Fish Health Inspections

*Inspections 1999-2000 (7/30/00)					
Year		Viral Samples	Bacterial Samples	Whirling Disease	Ceratomyxa shasta
1999	Lots Inspected	57	57	57	57
	No of Fish	3379	1468	1440	1020
2000	Lots Inspected	44	44	44	44
	No of Fish	2641	1108	960	720
Total	Lots Inspected	101	101	101	101
	No of Fish	6020	2576	2400	1740

***No Diseases of Regulatory concern were detected**

ISAV Surveillance- No State Funded ISA Surveillance of Marine Sites was carried out for 2000. However, there were no incidences of unusual mortality at any of the Maine sea cage sites that would suggest the presence of ISAV in Maine waters. Following is a summary of the results of the 1999 ISAV surveillance program:

Site	# Site Visits	# Fish/ # Pools Tested	Test Results(# of Pools or Samples Positive)				
			ISAV isolation	“Toga “ CPE	IFAT*	Histo	Direct RT-PCR
A	1	10/5	0 ^A	0 ^B	3(1+) ^C	ND ^D	ND ^E
B	1	7/4	0	1	1(1+)	ND	ND
C	1	10/3	0	2	0	ND	ND
D	3	17/17	0	8	4(1-3+)	0/8	0/6
E	1	2/2	0	0	0	ND	ND
F	2	14/11	0	6	1(2+)	ND	0/4
G	1	6/6	0	1	0	ND	ND
H	3	9/7	0	2	0	ND	ND
I	3	19/11	0	3	0	ND	ND
J	1	10/3	0	3	0	ND	ND
K	0						
L	0						
M	1	6/2	0	2	0	ND	ND
N	1	4/3	0	0	0	ND	ND
O	1	10/5	0	0	0	ND	ND
P	2	20/8	0	0	0	ND	ND
Q	2	15/8	0	5	0	ND	ND
R	0						
S	1	10/4	0	4	1(1+)	ND	ND
T	1	10/2	0	0	0	ND	ND
U	1	10/8	0	0	0	ND	ND
V	1	10/3	0	0	0	ND	ND
W	1	10/7	0	0	0	ND	ND
X	1	4/2	0	0	0	ND	ND
Y	1	4/2	0	0	0	ND	ND
Total	31	206/123	0	27(22%	9(+/-)	0/8	0/10

1999 ISAV Surveillance Results

Results of the Surveillance Study of Marine Salmon Sites in Maine May - August 1999.

^A Number of CHSE and SHK cultures of organ pool samples with ISA- type CPE

^B Number of CHSE and SHK cultures of organ pool samples with Toga-type CPE

^C Number of kidney impressions of individual fish positive

^D Number of samples with ISA/HKS histopathology lesions

^E RT-PCR tests done on direct-tissue samples positive for ISA

* Suspect ISAV IFAT's were negative under confirmatory RT-PCR and histology. To be considered a suspect, IFAT's have to be a 3+ or greater.

Biosecurity

Biosecurity Audits

a. Marine Sites

One of the identified threats to wild salmon is the potential for interaction with farmed salmon escapes. In order to minimize the potential for escapes, third party biosecurity audits were conducted of marine sites for DMR and results provided to the respective companies. The purpose of these audits is to provide companies with information to help them maintain and improve performance in the area of biosecurity. Individual company scores ranged from 43% to 73%.

b. Processing Plants

Diseases can be transmitted into the environment from improperly handled fish offal and bloodwater. Four companies participated in the processing plant audits. On a scale of 0 to 100, company ratings ranged from 32% to 99.5%. The intent of these ratings is to serve as a mechanism to point out potential problems and stimulate improvements in biosecurity in the operation of processing plants.

ISAV Action Plan-

The Maine FHTC (Fish Health Technical Committee) endorsed the Aquaculture Industry ISAv Action Plan and complemented the industry for their adoption of the plan.

ISAV Vaccination-

One salmon producer applied for USDA:APHIS approval to conduct ISAv vaccination in the US, involving approximately 16,000 fish. USDA:APHIS approved use of the vaccine. There are currently two vaccine companies pursuing full USDA licensure of ISAv commercial vaccines. A Canadian vaccine company is currently seeking USDA licensure of a BKD vaccine.

Code of Containment- The DMR continued to work on finalizing draft rules that will comprise the code of containment regulations. Among other things, the rules will address the most significant sources of risk of loss by focusing on net strength, equipment integrity, and predator control measures. Research and experimental predator control programs will require substantial commitments from NMFS in order to achieve any progress in containment. One of the major sources of escapes occurs from seal attacks on sea cages. Research on seal behavior and experimental selective removal programs offer one of the few realistic options to improve containment and minimize escapes. This should be a high priority activity for NMFS in the coming year. The proposed containment rules should be available for public review and comment by February 2001. The projected date for adoption of these rules is late March or early April 2001.

State Planning Office

Annual Salmon Conservation Plan Report State Planning Office -- 1999-2000

Task #1 -- Prepare water use management plans for the Narraguagus and Pleasant Rivers and Mopang Stream

Description

The State Planning Office chairs a stakeholders group called the Water Use Management Plan (WUMP) Committee. This committee of 20 plus members and 15 plus observers is responsible for producing a Water Use Management Plan by December 14, 2000. (see attachment #1) The Plan will consist of three river specific "Hydrologic Aspect Reports" prepared under contract by the Army Corps of Engineers. These reports form the basis of the Plan.

The Plan (see attachment #2) will have 10 chapters. These chapters are being written and will be completed by December 14th.

Task #2 --

- 1) Description of your Atlantic salmon conservation activity and results
- 2) A cross reference to your agency's March 1999 workplan
- 3) An assessment of what percent of the activity is complete
- 4) Highlights of work in a particular watershed

Atlantic Salmon Land Conservation

Organized the creation of a Salmon Lands Protection Specialist in support of the Atlantic Salmon Conservation Plan. Included raising \$50,000 for the position and brokering support from the Quoddy Regional Land Trust as a conservation partner.

Successfully lobbied for the funding of land ownership mapping on the downeast rivers resulting in a grant being made for \$10,500 through the Atlantic Salmon Collaborative.

Raised \$145,175 to complete the Frank Gross LMF acquisition protecting one mile of critical salmon habitat and establishing a field research facility to be operated cooperatively between the NMFS, USFWS, and the ASC.

MAJOR LAND PROJECT with International Paper, formerly Champion International, continued involvement but now as consultant to the Atlantic Salmon Commission and assembled and submitted a proposal to the Land for Maine's Future Program and to the Atlantic Salmon Collaborative to establish the \$1,050,000 required to bring this project to fruition. Success has been good to date with approximately \$400,000 in grants secured through the National Fish and Wildlife Foundation. Pending action by the Land for Maine's Future Board. This has been a complex set of negotiations.

TECHNICAL ASSISTANCE

Published the West Branch Riparian Inventory for the Sheepscot River.

Published the Machias and East Machias Rivers Riparian Inventory. Paul dest and Lorrain lessard and Aline were significant partners in this effort.

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Land for Maine's Future Program
Maine State Planning Office
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Department of Transportation

Atlantic Salmon Conservation Plan (ASCP)

MDOT Annual Report 2000 11/15/00

The Maine Department of Transportation (MDOT) continues to provide habitat restoration by aggressively addressing nonpoint source pollution associated with transportation facilities located in salmon watersheds. MDOT staff also contributes public works and erosion and sedimentation technical assistance and training to parties beyond MDOT.

MDOT's accomplishments are due in part to funding dedicated to salmon habitat restoration or water quality initiatives,¹ yet are also the result of organizational changes and steady internal cultural shifts which gradually improve the environmental stewardship of all MDOT projects and activities. Fundamental reorganizations and new dedicated environmental staff positions in MDOT's Bureaus of Maintenance, Planning, and Project Development² and MDOT's Environmental Office³ all contribute to a more environmentally responsive transportation system in Maine. Pioneering interagency collaboration between MDOT, the Federal Highway Administration, and state and federal environmental agencies have also allowed award-winning transportation projects to go forward in sensitive watersheds without scheduling delays or productivity sacrifices.

The recent successes of MDOT are due to the hard work of many people both in the field and in management. Special recognition for dedicated attention to erosion and sedimentation control in salmon watersheds goes to Dr. Willaim Reid and Michael Clark of MDOT's Environmental Office. Mike has worked tirelessly to advocate for responsible construction and maintenance both inside and outside the Department. Bill Reid retired in the summer of 2000 following a pioneering commitment to integrating transportation and environmental issues, and a personal focus on Maine's salmon efforts.

Project Design & Construction. MDOT continues to improve its project design and construction practices on all projects. Full integration of environmental decision making into all phases of project development, with new environmental staff and reorganized planning and project development staff, allows early identification of conflicts and opportunities for resolution. New

¹ MDOT Fiscal Year 2000-2001 program project 7771.00 \$50,000 funding for survey of watersheds to identify nonpoint sources. MDOT currently proposes to redirect these funds for construction material for emergency maintenance activities in salmon watersheds. MDOT Fiscal Year 2000-2001 non-project budget PIN 9362.46 \$60,000 for staff support and coordination with Atlantic Salmon Commission and Watershed Councils and support of the MGS Eastern Maine Rivers Low-flow Study. MDOT Fiscal Year 2000-2001 program project 7765.00 \$600,000 state and federal (TEA21 Enhancement) funding for the Surface Water Quality Protection Program.

² MDOT's Bureau of Maintenance & Operations in the fall of 2000 made resources available to hire five Environmental Coordinators located in regional division offices to better assure environmental compliance and stewardship. MDOT's Bureau of Project Development has reorganized to bridge the historic conflicts between construction and design, which often lead to environmental tensions. BPD has named the Assistant Program Managers of each of its offices as an Environmental Liaison and retains staff in its Office of Quality to oversee environmental stewardship. MDOT's Bureau of Planning has reorganized to allow implementation of MDOT's Integrated Transportation Decision making process, fully integrating National Environmental Policy Act decision making with the transportation planning process through dedicated staff positions.

³ In the fall of 2000, MDOT's Environmental Office implemented recommendations of the 1999-2000 Office of Environmental Services Unit Review to assure continued improvement of environmental responsiveness by MDOT. The new Environmental Office (formerly Office of Environmental Services) contains two Project Team Environmental Coordinators to better advocate for environmental issues in project planning, design, and construction. The new Environmental Office also includes a new Hydrology Unit to allow more focused expertise.

contract specifications require all contractors to be fully accountable for erosion & sedimentation control plans and implementation on all projects. Continued implementation of erosion & sedimentation best management practices with collaborative oversight by the Maine Department of Environmental Protection guarantees continual improvement of water quality.

Concurrent with highway reconstruction projects on Route 9 in Washington and Hancock Counties, wood waste erosion control mixes and large sedimentation basins have been installed to collect winter sand, along with bituminous curb and rip rap downspouts. Year 2000 projects include Crawford, Route 9, East Machias watershed, including stabilization of the adjacent rest area (see photo #1); Township 24, Route 9, Machias watershed; and Devereaux, Route 9, Pleasant & Narraguagus watersheds. Route 9 highway work in Township 30, Machias watershed, included moving two informal rest areas at Mopang Stream away from the stream to provide a buffer area adjacent to Atlantic salmon habitat. The rest area on the north side of Route 9 was replaced with a large sediment basin.

The Bureau of Project Development also built a retaining wall in Alna, Route 194, Sheepscot watershed to address chronic erosion affecting salmon habitat (see photo #2). The Route 105 bridge crossing the West Branch of the Sheepscot River in Windsor was replaced with stream bank stabilization and removal of lead paint beams from the old structure.

Maintenance Projects. MDOT funding specifically dedicated to salmon watersheds has largely been used to provide technical assistance to maintenance crews and to leverage maintenance activities beyond the norm in salmon watersheds. In addition to implementation of erosion & sedimentation best management practices on all projects, targeted staff training in salmon watersheds is leading to continual improvements. MDOT staff also developed detailed GIS-based watershed maps identifying all MDOT owned and operated facilities, as a tool for workers to easily identify critical areas.

Maintenance crews addressed chronic erosion problems in the Pleasant River watershed by installing rip rap slope stabilization on East Side Road in Addison (see photo #3). Other maintenance projects driven by attention to salmon habitat included improvements at the Deblois Narraguagus River/Route 193 bridge, and replacement of a culvert end that had been undermined as it separated from the main part of the pipe in the Narraguagus watershed.

Maintenance crews have also used MDOT maintenance funds to respond to findings of a Kennebec Conservation District watershed survey of the West Branch of the Sheepscot, collaboratively implementing best management practices in several locations, including the Route 17 West Branch crossing in Windsor, in coordination with the Maine Department of Environmental Protection's 319 grant project.

Surface Water Quality Protection Program (SWQPP). Funded with the support of State of Maine revenues and the Federal Highway Administration's Enhancement Program (TEA21), the SWQPP provides \$300,000 per year in funds dedicated for water quality projects on state highways. Eligible projects nominated by the public or watershed councils must go above and beyond activities that MDOT would undertake under standard maintenance or project practices.

In the summer of 2000, MDOT completed a SWQPP project in Whitefield at the Route 17 crossing of the Main Stem of the Sheepscot River. An old, non-functional corrugated metal downspout and subsequent eroding gully were replaced with a large riprap downspout. Two sediment basins were installed upstream of the downspout to trap winter sand. MDOT will provide maintenance on the first basin and the Sheepscot Valley Conservation Association will maintain the lower basin. Vegetation was planted on either side of the downspout to help mitigate potential thermal pollution impacts (see photo #4).

Clean Maine/Environmental Management Systems. In support of the Department of Environmental Protection's Clean Maine initiative, MDOT has expanded its voluntary environmental compliance audits of MDOT facilities and operations to include visits to construction and maintenance field sites to review compliance with water quality and natural resource laws. Combined with sustained technical assistance and monitoring of construction and maintenance activities, these periodic field audits improve department-wide attention to water quality impacts. MDOT's systematic approach to environmental management is being expanded to reduce the amount of winter sand laid on roadways through applications of new spreader technologies. New regulatory initiatives (revised 23 MRSA Section 704: access management) will also give MDOT more clear jurisdiction over drainage quantity and quality coming from private driveways. A new hydrology unit in MDOT's Environmental Office will also allow MDOT to better respond to complex hydrological issues that affect both infrastructure and habitat.

Technical Assistance. MDOT provided over 50 staff days of instruction to the Department of Environmental Protection Bureau of Land & Water Quality, Non-point Source Training Center for erosion and sedimentation training for private engineers, contractors, code enforcement officers, and municipal public works employees. Atlantic salmon issues are discussed at each training session. MDOT staff has contact with and is available to all Atlantic salmon watershed councils and is committed to providing immediate response to questions and concerns involving public works, and attendance at watershed council meetings as public works experts.



United States Federal Agencies

**National Marine Fisheries Service
Fish and Wildlife Service**

National Marine Fisheries Service

National Marine Fisheries Service
Atlantic Salmon Management and Research
(Overall Budget/Expenditures, FY2000 - \$2.3 Million)

Atlantic Salmon Management

The NMFS, Northeast Regional Office, is engaged in a number of activities in support of the conservation and restoration of the Gulf of Maine Atlantic salmon DPS. A wide range of activities and projects were undertaken by Regional NERO staff in FY2000. Specific projects/activities include:

1. Contributed funds to be combined National Fish and Wildlife Foundation (NFWF) and Land for Maine's Future funds to secure a conservation easement on Narraguagus property. The property is the site of historical smolt trap placement used in the assessment of Narraguagus river. The Atlantic Salmon Commission will hold title to the house. In addition to serving as a educational and outreach center to promote the conservation and recovery of Atlantic salmon, the ASC will provide office space to the NMFS and Project SHARE. The house will also provide laboratory and equipment storage.
2. Provided funds to Project SHARE (Salmon Habitat and River Enhancement) to assist SHARE's educational activities, specifically maintenance of the Wild salmon webpage (www.mainesalmonrivers.org/).
3. Funded two studies, to be carried out by the University of Maine and the Maine Department of Marine Resources, to investigate the interactions between seals and Atlantic salmon.
4. Provide funds to support the activities of the Ducktrap River Coalition Education Committee including the River Keeper program, preparation and dissemination of educational materials and distribution of a watershed curriculum.
5. Entered into a cooperative agreement with the Conte Anadromous Fish Research Center (USGS, Biological Resource Division) to investigate and gain insight into the causes of the observed low survival rates of early life stages of Atlantic salmon.
6. Provided funds to support NMFS staff to work with the United States Geological Service in analyzing Atlantic salmon genetic data to identify origin of fish taken in the West Greenland fishery.
7. Purchased equipment for watershed councils to use in water quality analysis.
8. Provided support to the US delegation to the North Atlantic Salmon Conservation Organization (NASCO). The support provided included preparation of U.S. position papers for the annual meeting and coordinating the U.S. section meeting.

Atlantic Salmon Recovery Science and Research

The NMFS, Northeast Fishery Science Center conducted a variety of scientific research and assessment activities in support of efforts to conserve and restore Atlantic salmon in US waters and throughout its migratory range. The focus of this research is to investigate and quantify factors affecting the survival of Atlantic salmon. The NMFS is working cooperatively with state, industry, private and federal organizations on these investigations. The overall goals of this research include:

1. Evaluate factors affecting smolt production of the Gulf of Maine (GOM) distinct population segment (DPS) of Atlantic salmon.
 - NMFS continued to identify and evaluate factors affecting smolt production in the Narraguagus and Pleasant Rivers. Preliminary efforts were conducted to expand monitoring to the Sheepscot and Ducktrap Rivers in 2001.
2. Evaluate factors affecting estuarine and near-shore ocean survival of smolts and postsmolts
 - Research to determine the factors affecting estuarine and near-shore ocean survival of smolts and postsmolts was expanded to include a new tagging program focused on the Penobscot River. Preliminary results of the analysis of telemetry data from the Narraguagus River suggest that a substantial portion of marine mortality may be occurring in near-shore habitats.
 - Collaborative work with Canada was initiated to determine if US fish enter the Bay of Fundy and if Canadian fish enter the Gulf of Maine.
 - Research and development of minimally invasive surface trawls to further study near-shore ecology of post-smolts. We project that preliminary trials will be initiated in 2001
3. Integrate hatchery and wild populations to conserve remnant populations and produce sustainable fisheries
 - Tissue samples were collected from wild spawners in three DPS rivers. Genetic screening was conducted on all matings for the 5 river specific stocks at the Craig Brook National Fish Hatchery. This information will make a quantitative assessment of the relative contribution of wild and hatchery spawned fish possible. NMFS staff are key members of the cooperative effort involving state, federal and industry to stock sea-caged reared adults into three rivers.
4. Inventory and prioritize habitat rehabilitation and assess the effects of Atlantic salmon habitat restoration projects.
 - Progress was made on the inventory and prioritization of habitat rehabilitation needs and assessing the success of current Atlantic salmon habitat restoration projects. Population data were linked with juvenile rearing habitat data in a geographic

information system (GIS). This GIS will enable researchers to characterize smolt production and track freshwater and marine survival of fish from distinct family groups and river reaches. Collaborative work with the ASC has identified some river reaches that consistently produce fewer smolts than believed possible based on available habitat.

5. Implement and monitor the Maine Conservation Plan
 - The NMFS NEFSC staff have been active in implementing the Maine Conservation Plan. NMFS continues to make progress on a number of duties assigned to it by the ASCP. NEFSC staff serve as the Chair and Secretary of the salmon Technical Advisory Committee (TAC) and Chair of the Stock Enhancement Working Group. The TAC provides technical advice on Atlantic salmon management and research issues and facilitates coordination between all agencies involved in salmon restoration and recovery efforts in Maine.
6. Evaluate conservation measures including cumulative effects of acid rain, pesticide and other factors using population viability analysis.
 - The effect of pulses of acidity on the transition to seawater of Atlantic salmon smolts was conducted. Preliminary results suggest that pulses of acidity may affect the transition of smolts from fresh to salt water.
7. Contacted with private laboratory in Maine to test wild marine fish for various salmonid disease agents. Of particular interest is infectious salmon anemia (ISAv).

A summary of activities specific to each of the six project goals is provided in Table 1. Additionally the NEFSC conducted research on factors influencing the survival of US origin salmon, primarily within the estuarine and marine environment. Activities focused on international issues, restoration of Atlantic salmon in non-DPS rivers and stock dynamics in the marine environment. Activities also support the statutory commitments of the US to NASCO, ICES and various national management authorities.

Fish and Wildlife Service

US Fish & Wildlife Service

Input for Maine Atlantic salmon Conservation Plan Annual Report for 2000

FWS personnel continued to work closely with the state and others on the Water Use Management Plans for the Narraguagus, Pleasant and Machias (Mopang Stream) watersheds:

- serving on (a) the Stakeholder Group that was formed to identify issues and help develop the plan; (b) Technical Flow Group that is working closely with the state's contractor (Corps of Engineers) that has been hired to produce the plan.

FWS personnel continued to serve as a voting member on the TAC, which is responsible for helping to implement the Conservation Plan through providing technical advice to the Maine Atlantic Salmon Commission.

Staff from the Green Lake National Fish Hatchery (NFH) played a major role in the hauling and stocking of Aquaculture raised river-specific adult salmon, produced by the aquaculture industry, in the Dennys, Machias and St Croix rivers. The fifteen stocking trips took approximately 105 staff hours.

The FWS staff at salmon production facilities in Maine continued with implementation of river-specific Atlantic salmon culture program which includes:

- collection, PIT tagging, genetic sampling and characterization of the broodstock;
- development, maintenance of broodstock, genetic, spawning and stocking databases;
- spawning; distribution; care of the fish and eggs of five DPS populations;
- development, implementation and adherence to fish health biosecurity plan;
- Produced and distributed:
 - 96,000 fry + 30,000 parr + 7 adults to Dennys River
 - 197,000 fry + 65 adults to East Machias River
 - 213,000 fry + 92 adults to Machias river
 - 261,000 fry + 96 adults to Narraguagus River
 - 211,000 fry + 25 adults to Sheepscot river

FWS Fishery Management staff participated in;

- Atlantic salmon habitat evaluation and quantification on the East Machias and Machias Rivers.
- Technical assistance to private organizations such as the Downeast Rivers Coalition, Project SHARE, and various watershed councils on the lower Penobscot and DPS rivers.
- developing a geomorphic approach to river habitat restoration on rivers such as the Machias, Narraguagus and Sheepscot rivers.
- providing technical assistance and coordination to the Penobscot Indian Nation and the Passamaquoddy Indian Tribe on issues related to wild salmon recovery. (Example: Worked with the Passamaquoddy Indian Tribe to evaluate existing and potential Atlantic salmon habitat in Libby Brook in regard to developing an water withdrawal management plan for agricultural purposes.)
- sampling growth and tag retention of river specific Atlantic salmon stocks reared in net pens by private aquaculture industry, and releasing adult pen-reared salmon into the rivers of origin.
- outreach/education activities such as watershed council workshops, tours of hatchery facilities, and program education.

- Maintenance of water quality parameters in such rivers as the Sheepscot, East Machias and Ducktrap rivers.

The FWS's Fish Health Unit at Lamar, PA supported the Conservation Plan through 2000 with numerous activities:

- The annual fish health inspections for all policy listed pathogens, including ISA virus, were conducted on all lots of fish held at Craig Brook and Green Lake NFH's in March 2000. Fish health monitoring of all mortalities of wild salmon stock held in hatcheries was conducted throughout the year, and no listed pathogens were detected.
- Through cooperation with NMFS and the Maine Atlantic Salmon Commission, the Fish Health Unit examined out migrating smolts from Downeast Rivers weir traps as part of the National Wild Fish Health Survey.
- Ovarian fluids from all spawning Atlantic salmon at Craig Brook NFH are underway of investigation for viruses at the Fish Health Unit.
- Blood samples were collected and archived from Pleasant River ATS smolts captured from the wild and submitted to Cornell University for tested for Salmon Swimbladder Sarcoma virus (SSSV) to determine the prevalence of this poorly understood retrovirus in the wild.
- Capabilities for detection of the ISA virus using polymerase chain reaction (PCR) technology were established at the USFWS Fish Health Lab in Lamar, PA.

FWS staff at Gulf of Maine Project led Atlantic Salmon Collaborative program to develop potential projects, prioritize proposals and coordinate and administer \$1.5 million National Fish and Wildlife Foundation land protection and restoration fund. Working with federal, state and local conservation partners the Collaborative identified, purchased and permanently projected over 3800 acres and over 32 river miles adjacent to important spawning and rearing areas. The program has also assisted with support for a full-time land protection specialist for the downeast rivers FWS staff at Gulf of Maine Project habitat mapping program;

- completed habitat mapping surveys on East Machias, Libby Brook, Souadabscook, and Penobscot Tributaries. Developed GIS coverages and maps from habitat surveys and created Atlantic salmon spawning and rearing habitat atlas for all rivers.
- Conducted geomorphic assessments at a variety of disturbed sites on the Sheepscot, Ducktrap, East Machias and Kenduskeag Stream.
- Working with ASC, USGS and MDEP, initiated development of a regional hydraulic geometry curve, which plot width, depth, channel area and flow velocity, as functions of stream discharge and watershed size.
- Provided comprehensive GIS coverages of habitat, hydrology, land cover and related watershed information to watershed councils in the Sheepscot, Ducktrap and downeast rivers.

FWS staff at Gulf of Maine Project Assisted with assessment and design of channel restoration associated with East Machias dam removal. Provided technical assistance to the Dennys River Watershed council on assessment and design of streambank stabilization project. Provided technical assistance and assisted with coordination of Trout Unlimited/American Forest Foundation Shared Streams project. This project is working with certified tree farms to develop four sample restoration demonstration projects.

Watershed Councils

**Downeast Rivers Coalition
Ducktrap Coalition
Sheepscot River Watershed Council**

Downeast Rivers Coalition

**Downeast Watersheds Coordinator
Wild Salmon Resource Center
Contract Report, November 2000**

Dwayne Shaw

Re.: Project Achievements: Atlantic Salmon Conservation Plan

Introduction:

The following is a summary of activities undertaken throughout the past year by a large network of individuals and organizations in cooperation with the Downeast watershed councils and in support of a variety of Atlantic salmon conservation projects. These projects have been focused on habitat restoration, protection, assessment and education in the five Downeast watersheds. This report is intended to highlight some of the major achievements of the individual watershed councils, the Downeast Rivers Coalition (DRC) and the Downeast Salmon Federation's Wild Salmon Resource Center (WSRC).

Note: Many individual landowner activities are not mentioned. We are aware however, that many positive individual landowner actions to protect Atlantic salmon habitat have been inspired by the activities of the watershed councils and the increased awareness resulting from local level organizing in support of the Maine Atlantic Salmon Conservation Plan.

Narraguagus River:

- CHAMP (Cherryfield Habitat Action Management Project)

C.H.A.M.P.

(Cherryfield Habitat Action and Management Project)

An action oriented, community-based, fisheries enhancement and demonstration project.

Facilitated by the Narraguagus River Watershed Council

Goal: *Improve fish populations, water quality and increase public participation and awareness on one discrete reach of the Narraguagus River in Cherryfield, Maine.*

Concept: *Facilitate a phased in, conservative -but comprehensive and large scale- habitat restoration project for the downtown Cherryfield reach of the Narraguagus River. This project, as envisioned, will be a high profile, broad-based partnership requiring substantial technical design, significant funding and a long-term commitment of 3 - 5 years. The reach has been identified by the Watershed Council as their highest priority and will include instream and riparian areas and the sub-drainages of several minor tributaries beginning at the ice control dam and ending at or near the Rt.1 bridge. This reach is the most highly degraded mainstem juvenile salmon habitat on the Narraguagus River and arguably holds the same distinction among all the downeast rivers. Equally, if not more, important is the fact that this reach is among the most well documented and studied of any in the seven watersheds therefor making the results of any achievements measurable.*

Proposal: Simply stated; any and all factors affecting water and habitat quality, fisheries, wildlife, and land use management within this defined area will become the focus of an interagency, local governmental, NGO and citizen/landowner team or taskforce - otherwise known as the CHAMP Committee.

- Five high priority CHAMP erosion sites temporarily stabilized with funds supplied by Narraguagus River Watershed Council (NRWC) member donations and the Atlantic Salmon Commission. Labor provided by approximately 25 volunteers and students. Department of Environmental Protection (DEP) 319 Incremental Funds (\$77,000) secured for permanent stabilization of a number of CHAMP sites beginning in Spring 2001. These funds to be administered and directed by the Washington County Soil and Water Conservation District.
- The NRWC has successfully competed for and been awarded a DEP 319 Watershed Planning Grant. This grant will pay for consultant fees associated with drafting and printing of the Non Point Source Pollution Watershed Management Plan. Additional field assessments will also be conducted under this project.
- NRWC currently working with the town government of Cherryfield on Natural Resource Conservation Service and Atlantic Salmon Watersheds Collaborative project proposals for each the sand and salt shed construction (total estimated cost: \$150K), replacement of undersized and eroding culverts (total estimated cost: \$45K) and riverbank stabilization (total estimated cost: \$35K).
- Sponsored a National Rivers Day, River Cleanup that recovered over six pickup loads of trash and one automobile from the river. Over 30 volunteers participated in the activities
- Wild Salmon Resource Center provided technical assistance in mapping, photographing and planning for NRWC implementation grant proposals delivered to ASC in October. These proposals focus on recreational vehicle impacts to water quality and salmon habitat.

Pleasant River:

- Non Point Source Pollution Project Coordinator Torrey Sheafe and the 319 Steering Committee of the Councils completed and submitted the final draft of the Assessment Report for the Pleasant and Narraguagus watersheds in early 2000.
- WSRC facilitated the development of a Memorandum of Understanding between the Pleasant River Watershed Council (PRWSC) and the Town of Columbia Falls regarding arrangements designed to satisfy each party's interests relative to loss of tax revenue and conservation of the "Hatch Parcel". This project will permanently protect over 9,000' of critical salmon habitat.
- The Watersheds Coordinator drafted and delivered a grant proposal to ASC on behalf of the PRWSC for acquisition of the Hatch Parcel. Coordinated all pre-acquisition work

related to this project, including title, appraisal and contaminant reviews. Provided GIS and other technical and planning assistance to the Council for use in discussions with various parties.

- WSRC staff assisted a local landowner in developing a fifty – year, term easement through the US Fish and Wildlife Service and the Farm Service Agency that protected over one mile of important salmon habitat adjacent to the Hatch Parcel noted above.

Machias River:

- The Watershed Coordinator drafted and delivered a grant proposal to ASC on behalf of the Machias River Watershed Council for two erosion control projects (Whitneyville Landing and Sand Beach). Coordinated design plans for work at the Whitneyville Landing with Nate Pennell of WCS&WCD and for the Sand Beach site with Bill Cherry of International Paper.
- WSRC assisted with coordination of riparian plantings of a 300' buffer along Dan Hill brook in Whitneyville. Maggie Martin, DSF Americorps Volunteer coordinated plantings and volunteers. Nate Pennell secured landowner permission and a local area Brownie troop, parents and Council volunteers supplied labor. MFS supplied funding for trees and shrubs.
- Development of a riparian buffer inventory underway for delivery to ASC / SHARE and the Council in December, 2000.
- Several other potential future erosion control projects are pending and will be dependent upon the International Paper - Champion transition.
- Sponsored and completed a National River Cleanup Day along the river in the downtown Machias area.

East Machias River:

- Former Bangor Hydro Dam removal completed in cooperation with the Coastal America Program and other federal, state and local partners. Associated river corridor restoration work being planned for spring, 2001.
- Chase Mill Stream Dam removal and breaching project completed in cooperation with the Coastal America Program and other federal, state and local partners. Associated river corridor restoration work being planned for spring 2001.
- The East Machias River Watershed Council worked in cooperation with the town of East Machias, the Soil and Water District and other partners to secure funding for maintenance of the Gardner Lake dam and fishway. Construction completed in October of 2000.

- Development of an East Machias riparian buffer inventory underway for delivery to ASC / SHARE and the Council in December 2000.
- Planning underway for possible construction of a recreational vehicle bridge at site of current ford at Munson Rips.
- The Council is involved in planning with DSF, UMM and the Town of East Machias for the creation of a fisheries laboratory, salmon fry hatchery and interpretive center in the former Bangor Hydro building. The Maine Science and Technology Foundation has awarded DSF a \$25,000 planning grant for this purpose.

Dennys River:

- The Dennys River Watershed Council completed a Strategic Plan to guide Council activities in the years to come. Facilitation for the work was provided by Project SHARE and the Wild Salmon Resource Center.
- Stabilization of Dennys River Sportsman's Club property riverbanks: Watersheds Coordinator is facilitating natural stream channel design discussions between a number of interested parties.
- Planting of riparian areas on the Sportsman's Club property begun in October 2000 with volunteer coordination by DSF Americorps member Maggie Martin. Volunteers included local Boy Scouts, Parents, Club and Council members.
- Non Point Source Pollution Project Coordinator Torrey Sheafe and the 319 Steering Committee completed a first draft of the Assessment Report for the Dennys watershed in October, 2000. Final report will be completed
- Riparian conservation easements being negotiated with a small private landowner in cooperation with Quoddy Regional Land Trust. Frontage includes critical salmon habitat on mainstem and Cathance Stream. Grant proposal drafted in association with QRLT and delivered to ASC in October. Similar proposal developed for Atlantic Salmon Watersheds Collaborative funding.
- Development of a Dennys river riparian buffer inventory underway for delivery to ASC / SHARE and the Council in December 2000.
- The Marion Falls fishway maintenance and repair project completed.
- Sponsored and completed a National River Cleanup Day Canoe Trip in the Meddybemps deadwater area.
- Sponsored a Fishing Derby where prizes and educational materials were distributed.

Wild Salmon Resource Center / Downeast Salmon Federation:

- Provided assistance to the Downeast watershed councils in support of dozens of conservation initiatives as highlighted above.
- Sponsored educational programs for school and community groups throughout the region. These programs included onsite interpretive tours of the community built and supported Pleasant River Hatchery and Wild Salmon Resource Center. Educational programs at the Center take advantage of the natural setting and location to introduce the public to the riparian ecology of the Pleasant River, historical issues surrounding fish passage and dams and estuarine conservation as related to migratory fishes. During the past year approximately 500 local children and nearly 700 adults have been in direct contact with the educational and outreach programs of the Center.
- Operated the mainesalmonrivers.org website as the primary site for publicizing watershed council, DSF and SHARE activities. Over 7,000 hits to the site in the past year.
- In the spring of 2000, the Downeast Salmon Federation entered into a cooperative research project with the National Marine Fisheries Service (NMFS). NMFS biologists: John Magee and Mariska Obedzinski conducted an experiment to investigate the effects of acidic events on smolts. This project utilized vacant tank space in the Pleasant River Hatchery and allowed for a mutually beneficial and interesting educational opportunity for visitors to the Center.
- Over the past several months, the DSF Board has redrafted their Articles of Incorporation and Bylaws in order to prepare for application to the Internal Revenue Service for federal 501 (c) 3, not – for – profit status. The reorganization will allow for the organization to also serve as a landtrust primarily focused on the salmon rivers of Western Washington County.
- Volunteers stocked 23,000 Brook trout from the Pleasant River Hatchery into the Pleasant river drainage in 2000. This departure from raising and releasing salmon fry was due to the Salmon Swimbladder Sarcoma Virus identified in the Pleasant river system.
- Final landscaping of the grounds of the Wild Salmon Resource Center completed this spring. Areas adjacent to the Pleasant River dam removal activity of last year stabilized with top soil, hay and conservation seed mixture
- Co – sponsored several habitat protection grant proposals with the Quoddy Regional Land Trust. Two of these proposals will provide funds for contracted consultants to assist the councils with information and planning assistance for habitat protection strategies in the Downeast region.

Downeast Rivers Coalition

- Throughout the year 2000, the Coalition has met monthly with interested governmental representatives and other stakeholders to develop a strong network to support Atlantic salmon conservation efforts for the Downeast rivers.
- The Coalition made recommendations to SHARE, DSF and ASC regarding Council needs for administrative and grantwriting assistance. Initiated the grant process whereby SHARE will receive funding via ASC for a fulltime Grantwriter to support Council activities.
- A “Seven Rivers Roundtable” has been initiated between all seven councils as a means of sharing information and to serve as an interface with governmental agencies, Project SHARE and the Wild Salmon Resource Center. Recommendations from this group have been presented to ASC. Meetings have been held bi – monthly or as needed.
- Common projects among the councils, such as water quality monitoring, are coordinated at the regional level through DRC and DSF. The water quality monitoring efforts in 2000 focused on the DEP sponsored program and water flows on the Pleasant River.

Ducktrap Coalition

Annual Report, 2000

Coordination of the Ducktrap Coalition, Ducktrap River Watershed

Report by Scott Dickerson, Executive Director

Coastal Mountains Land Trust, Coordinator of the Ducktrap Coalition

P. O. Box 101

Rockport ME 04856

207-236-9701

November 15, 2000

I. Background

The Ducktrap Coalition, watershed council for the Ducktrap River Watershed under the March, 1997 Atlantic Salmon Conservation Plan for Seven Rivers, has the broad purpose to "cooperatively guide Atlantic salmon conservation activities related to land use and other activities within each watershed." In addition, the Watershed Councils will "continue to review the status of threats in each watershed and determine the need for continued or new efforts to further minimize any potential threat to Atlantic salmon from future activities present in the watershed." The Ducktrap Coalition shares specific Plan implementation tasks with other agencies, including working with land owners to develop agreements and conservation easements that protect salmon habitat, informing land owners on the importance of conserving riparian wetlands, informing land owners and logging contractors on appropriate management of forest lands, and working to remediate conditions that are resulting in degradation of the river.

II. Conservation Actions of the Ducktrap Coalition, 2000

Coastal Mountains Land Trust is responsible for coordination of the Ducktrap Coalition activities, and shares the program work of the Coalition with the 18 other members and many citizen volunteers. The following narrative identifies the principal activities that have been conducted during 2000 to help conserve the Ducktrap Atlantic salmon population.

A. Coordination

Coastal Mountains Land Trust (CMLT) is the program coordinator and fiscal agent for the Ducktrap Coalition program. As coordinator, CMLT organizes the quarterly meetings of the Coalition members, prepares and distributes the minutes of the meetings, maintains the membership and distribution mailing lists, and participates in the committee meetings of the Steering Committee, Education Committee, the Ecology Committee, and the Land Protection Committee. As fiscal agent, CMLT accepts and administers funding that supports the activities of certain Coalition projects which are described below. In addition, one of the most important activities of the Coalition in 2000 has been development of a Five Year Plan to guide the program. CMLT has organized the process that will produce the plan, including meetings of the Steering Committee, design of a planning process, preparation of Plan outline and First Draft, incorporation of revision recommendations from members, and will prepare and distribute the final Five Year Plan in early 2001.

Coordination activities by CMLT receive funding support from the Maine Atlantic Salmon Commission, supplemented by the membership of the organization.

B. Coalition Projects

1. Ducktrap River Keepers

The Ducktrap River Keepers, a group of approximately 20 volunteers who regularly visit assigned sections of the riparian buffer along the Ducktrap River, prepare reports on their observations, and act as ambassadors for the program with the public that they encounter during their visits. The full length of the river is monitored by on-site visits at least once per year, and those areas with primary habitat for spawning and juvenile salmon (2 miles upstream and downstream of Route 52 bridge and the outlets areas of Black and Kendall Brooks) are monitored by on-site visits several times per year. Funding in the amount of \$5,000 was obtained from the Maine State Planning Office Shore Stewards Grant program to assist the Ducktrap River Keeper program become more organized and effective. The grant is being implemented by the Ducktrap Education Committee with fiscal agency by Coastal Mountains Land Trust. A part-time coordinator was contracted, Erin Caswell, who organized a River Keeper training program and administrative process. About 12 River Keepers have been recruited, trained, and are participating in the program.

2. Watershed Curriculum

The Ducktrap Education Committee has been working on a Ducktrap Watershed Teaching Curriculum during 1999 and 2000 with \$1,000 of support by the National Marine Fisheries Service and the Atlantic Salmon Federation. The curriculum is nearly complete, and will be introduced to schools of the watershed to provide teachers with a new resource for engaging their students in a practical, hands-on local learning experience. Tanglewood 4-H Camp and Learning Center, which coordinated the development of the curriculum, is already using materials for the curriculum in its multiple-age environmental education program.

3. Salmon Habitat Restoration

The Waldo County Soil and Water Conservation District, Maine Department of Environmental Protection, U. S. Environmental Protection Agency, U.S.D.A. Natural Resources Conservation Service, and Coastal Mountains Land Trust are working as partners to restore a small intermittent stream which is releasing substantial amounts of suspended sediments to the most productive spawning area of the Ducktrap River. A grant has been approved under the 319 program, and survey and planning work has begun. The project will restore approximately 1,750 feet of streambed, with a completion date for the construction of fall, 2001. The funding sources for the project include \$60,000 from the USEPA and \$40,000 from MDEP under the 319 grant. An application for \$15,000 has been submitted to USF&WS under the Atlantic Salmon Conservation Fund. If necessary, additional funding will be sought when the final design has been prepared and the construction contract estimates are available.

Adjacent to the site of the above 319 project is a second source of suspended sediments that are being eroded into the Ducktrap River. Maine Route 52 crosses the river in a valley with steep, long hills on both sides of the bridge. The highway ditches are in a securely vegetated condition for most of the hill sections, but one ditch area is not vegetated and is eroding and releasing silt

and other sediments into the river. Staff at CMLT have met with staff from the Maine Department of Transportation on several occasions during the past two years to discuss correcting the condition. A final resolution of the problem has not yet been determined and no corrective action has been taken by MDOT.

4. Water Quality Monitoring

The MDEP has hired a coordinator for water quality monitoring on the Atlantic salmon rivers of the State Conservation Plan. A sampling program that began in 1999 was expanded and continued on the Ducktrap River in 2000. Coastal Mountains Land Trust collected the water samples, which were picked up by the coordinator for analysis. This baseline sampling program will ultimately provide the data necessary to determine if water quality is being degraded on the river.

5. Salmon Habitat Protection

The Ducktrap Coalition has identified permanent conservation protection of the riparian area of the Ducktrap River as a feasible objective and has commenced work on achieving this protection. The principal methods of implementing this conservation protection are conservation easements and fee simple acquisition, conducted by working on a voluntary basis with the riparian land owners. Coastal Mountains Land Trust is leading this land protection effort, in collaboration with the Land for Maine's Future Program, Maine Coast Heritage Trust, Ducktrap Wildlife Preserve, the Maine Department of Conservation, and The Nature Conservancy. During 2000, three land conservation projects were completed by CMLT. A conservation easement donated by MBNA protects 1,467 feet of frontage on the river and 8 acres of steep forested riparian land. A 3.5 acre property with 640 feet of frontage on Black Brook, a primary tributary to the river, was purchased. A second property on Black Brook was placed under a donated conservation easement that protects 66.3 acres and 1,460 feet of frontage. In addition, CMLT has entered into an agreement to purchase approximately 160 acres of forested land with 2,425 feet of river frontage and 8,000 feet of frontage on Tucker Brook, another primary tributary to the river; closing is anticipated near year's end. The result of these projects, combined with previous land protection accomplishments of the Ducktrap Coalition members, is that more than 70% of the riparian buffer of the Ducktrap River is in permanent conservation management and ownership, and important portions of several of the primary tributaries are also protected. Funds for accomplishing these permanent conservation protections for Atlantic salmon habitat have been provided by a broad group of local donors, several private foundations, and state and federal agencies.

Sheepscot River Watershed Council

Sheepscot River Watershed Council
Annual Report to the Atlantic Salmon Commission
November 2000
Coordinator: *Melissa Halsted*
Phone: 622-7847 x 4
E-mail: *sheepscotcouncil@hotmail.com*



Progress of the Sheepscot River Watershed Council

Coordination:

- The Council Coordinator coordinated Council meetings. She created the agenda and took minutes as well as set up the meetings and notified members of the meetings. Minutes are on file at the Time and Tide RC&D office.
- Maureen Hoffman, the SVCA GIS Specialist/Office Manager and the Council Coordinator have been working to integrate all data available on the Sheepscot River. An example map is included.
 - ⇒ Data includes: NPS sites, WQM sites, temperature logger locations, salmon parcels, land trust lands, Atlantic salmon habitat, and redd locations.
- The Council Coordinator organized a meeting of the roads committee to discuss road maintenance issues. Some suggestions from the meeting include:
 - ⇒ Survey towns to assess the capacity to maintain erosion control structures
 - ⇒ Look into an Adopt-A-Basin program
 - ⇒ Look into the possibility of grants to make a fund to help towns cover the cost of maintaining erosion control measures.
 - ⇒ MDOT asking for additional funds to maintain structures on state roads
 - ⇒ SWCD could possibly own the equipment and loan it to the towns.
 - ⇒ Endowment for road issues
 - ⇒ Assess the number of sediment traps in the watershed
- The Council has moved to the Time and Tide RC&D office. A new contract for an additional year has been drawn up.
- The Council Coordinator has reviewed forestry notification permits and DEP Permit by Rule applications within the watershed.
- The Council has participated in the 8 Rivers Roundtable, a group that was set up by the eight councils to communicate with each other about our efforts. Six meetings were held this year.

Restoration

Completed Projects:

- The Maxcys Mill riparian bank planting was a huge success in May. The SVCA and the Atlantic Salmon Commission funded the purchase of the trees used in the planting. This planting covered about ½ mile of riverbank along historical Atlantic salmon habitat. The ASC provided \$5000 from a special grant towards the completion of this project.
 - ⇒ Total cost of project: \$9,786.25
 - ⇒ Total donations: \$5,241.76 plus tools loans and food donations
 - ⇒ Total volunteer hours: 700
 - ⇒ Total number of trees planted: 1320
- Council volunteers completed the Rte 17 project of the DOT. Shrubs were planted along the rock waterway the DOT installed in September. Total volunteer commitment \$650. The Council also assisted the Kennebec Soil and Water Conservation District with a check dam project on the Rte 17 crossing of the West Branch of the Sheepscot River.

Planning Activities:

- Jed Wright of the USFWS and several Council volunteers undertook an additional assessment of the bank erosion in Palermo. This included:
 - ⇒ A pebble count
 - ⇒ Reach assessment
 - ⇒ Pin placement
 - ⇒ Bench mark placement
 - ⇒ Pool and riffle assessment
 - ⇒ Will return in the spring to assess any movement in the bank
- The SRWC developed a project list for the 2000 - 2001 year. A copy of that list is included. The Council has decided to pursue a watershed plan and several remediation projects. The watershed plan is still in the discussion phase. The Council is deciding on the best way to pursue this project. Planning for the remediation sites is getting started. The Council is also looking at ways to fund these projects. Progress on the list includes:
 - ⇒ Watershed management plan outline
 - ⇒ Preliminary assessment at the Palermo hatchery site
 - ⇒ Plan complete to plant the other side of the river at the Maxcys Mill site
 - ⇒ Initial planning of the Kings Mill site

Fundraising for Restoration Activities:

- The Council Coordinator has been working to find funding for Council projects.
 - ⇒ Wrote ASC habitat grant for easement project for \$18,000 – project was funded

- To obtain 4 easements
- ⇒ Wrote ASC habitat grant for two restoration projects \$7,000 – not yet been funded
 - To remediate a camp road
 - To restore a streambank to complete a livestock exclusion fencing system.
- Peter Abello, Maine Conservation Corps Volunteer for the SVCA, wrote the grant application to the ASC for \$5,000 for the Maxcys Mill project and a grant to the National Tree Trust for trees to plant some of Maxcys Mill II, the other side of the river.

Outreach:

- The Council Coordinator and the SVCA created three brochures. The brochures were funded by a Shore Stewards grant from the State Planning Office. The three brochures are :
 - ⇒ A watershed council brochure
 - ⇒ A riparian buffer brochure
 - ⇒ A conservation easements brochure
- An open house was held on September 20. There were several new faces in attendance. Activities at the open house included:
 - ⇒ Five Displays of Council partners
 - ⇒ Two Slide shows
 - ⇒ Locally produced snacks
- The Council Coordinator did a water quality demonstration for 1700 children at the first annual Conservation Fair at the Union Fairgrounds, hosted by the Knox-Lincoln SWCD.
 - ⇒ Schools from Lincoln, Knox and Waldo counties.
 - ⇒ Conducted a non-point source pollution demonstration
- The Chairman of the Council moderated the Forestry Workshop that was hosted by the SVCA with assistance from the Council, the Kennebec SWCD, the Knox-Lincoln SWCD and the MFS. The workshop was split into two sessions, the morning was for landowners and the afternoon for loggers and foresters. The focus was on how forestry can effect fish and water quality. There were 31 attendees and 10 speakers. A synopsis of the remarks is attached.

Monitoring:

- The Council Coordinator and the AmeriCorps volunteer took several of the DEP baseline samples on the river and one storm sample. All of that data is not back from the lab yet. The Council Coordinator continues to work with the DEP to refine the monitoring program.

Private Partners'

**International Paper
Jasper Wyman & Son
Project SHARE
Quoddy Regional Land Trust
Wild Blueberry Commission**

International Paper

November 28, 2000

Henry Nichols
Atlantic Salmon Commission
Muskie Building, Room 119
172 State House Station
Augusta, ME 04333-0172



FOREST RESOURCES
NORTHEAST REGION

Dear Henry:

This letter highlights activities undertaken by International Paper in support of Maine Atlantic Salmon Conservation Plan during the year 2000.

- IP initiated a contract with Hanscom Construction to remove the log crib dam built circa 1960 by the Atlantic Sea Run Salmon Commission on Spring River (tributary to the Narraguagus River). The structure was removed between August 16-24, 2000 (photos enclosed).
- An agreement was negotiated, in principle, with the Department of Conservation, Off-Road Vehicle Division and local all terrain vehicle (ATV) clubs to establish authorized trails for ATV use in areas that would not degrade Atlantic salmon habitat.
- IP is supporting projects of watershed councils and state agencies to identify non-point source water quality problems and initiates corrective measures once problems are located.
- All road construction/maintenance projects and timber harvests are conducted in accordance with regulations and Best Management Practices.
- IP water quality protection measures continue to exceed all state regulations through the implementation of the Riparian Management Guidelines developed by Champion International.
- All sensitive resources on the IP ownership are identified and mapped through a land classification process initiated to meet or exceed objectives of the Sustainable Forestry Initiativesm. Maps are updated annually to incorporate new sensitive/significant/rare resource information that has been collected by state agencies/IP staff over the previous year.

If you have questions or need additional information for your annual report to the Services, please contact me at 469-1578.

Sincerely,

Gary G. Donavan
Forest Wildlife Ecologist
International Paper
PO Box 885
Bucksport, ME 04416
Phone 207-469-1300
Fax 207-469-1347

Jasper Wyman & Son

November 21, 2000

Henry Nichols, Coordinator
Atlantic Salmon Conservation Plan
172 State House Station
Augusta, ME 04333



Dear Henry:

In response to your request for an update of Jasper Wyman & Son's involvement in Atlantic Salmon Conservation Plan (ASCP) activities in the year 2000, they include the following:

Participant	Activity
Gary Willey	Member of SHARE Steering Committee
David Brooks	Represented Jasper Wyman & Son at WUMP meetings and member of WUMP Flow Team
Fred Olday	Secretary, Narraguagus River Watershed Council (NRWC)
	Represented the NRWC at WUMP meetings
	Participant in DEP water quality sampling program on the Narraguagus River

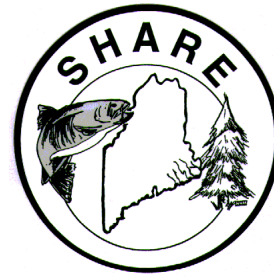
In addition to the time contributed by Gary Willey and Fred Olday to ASCP-related activities, which averaged 20-30 hours/month, Jasper Wyman & Son contributed (a) \$500 to Project SHARE in the form of dues; (b) \$500 to the NRWC for operating expenses; (c) \$2000 in support of the Wild Salmon Resource Center; and, (d) \$16,928 to support David Brooks' involvement in the WUMP process.

Sincerely,

Fred Olday
Director of Farm Research
Jasper Wyman & Son
Route 193, Box 20D
Deblois, ME 04622
Tel: 207-638-2201
Fax: 207-638-2145

Project SHARE

2000 Annual Progress Report
Maine's Atlantic Salmon Conservation Plan
Project SHARE's Program Highlights
October 1999—October 2000



Contract Administration and Fund raising

- Maine Atlantic Salmon Commission contract for hiring and managing a fulltime Watershed Coordinator under contract to assist and continue to organize and manage a coalition of the five-downeast watershed councils.
- Provide limited funding to each of the five watershed councils as necessary.
- Utilize the Wild Salmon Resource Center as headquarters for the Coordinator and provide 50% overhead funding of the facility to the Downeast Salmon Federation
- Secured a 319 non-point source grant from the Maine Department of Environmental Protection to do a survey on the Dennys River Watershed.
- Obtained a large grant from the Maine Forest Service to plant tress and remediate silt problems in all five downeast rivers. This project enrolled a lot of volunteers.
- Raised over \$27,000 from downeast businesses and large landowners that was contributed to the Wild Salmon Resource Center for education, grants, and operation funds.
- Funded the AmeriCorps position under the ASC contract to assist and work with the Downeast Watershed Coordinator.
- Managed a small contract for The Nature Conservancy to develop a Strategic Plan for the Dennys River Watershed Council.
- Secured a NMFS grant to maintain the DSF website, fund workshops and removal of debris dams.

Project SHARE meetings, Steering Committee, and Education

- Six regular SHARE membership meetings, as public Forums, were held at the Airline Snack Bar in T22MD with over 200 persons in attendance with excellent program speakers relative to protecting Atlantic salmon habitat.
- We also held six Steering Committee meetings in Bangor for the Board, to make decisions on action items of SHARE business that would assist or help the watersheds and support the Atlantic Salmon Conservation Plan.
- Coordinated a mini-conference with the UMM on Acid Rain and Climate Change in Machias. Various planning meetings were held to assist councils to attended these meetings.
- The Executive Secretary attended a number of watershed coalition meetings during this time period.
- Participated in the Water Use Management Plan meetings as well as the DEP water withdrawal meetings and the University of Maine water use conference. These are critical regarding the future methods of water withdrawals and proposed regulations on water use.
- Project SHARE has a very active Education Committee and continues to provided workshops, training and assistance to the watershed councils through collaborative planning and a financial grant from the National Marine Fisheries Service.
- We continue to cooperate with the U.S. Fish and Wildlife Service on meetings of the TAC with staff located at the Craig Brook National Fish Hatchery.

Meetings, Legislation and Listing

- SHARE's Steering Committee continued to remain neutral in the listing process and has stayed away from lawsuits. Rather it has focused its resources in support of the State of Maine Atlantic Salmon Conservation Plan.
- Project SHARE supported legislation for funding of the Maine Atlantic Salmon Commission, which in turn has helped Project SHARE and the five-downeast watershed councils.
- SHARE also participated in a number of invitational meetings to make presentations on its mission and progress work on the PLAN to various organizations outside of the five-downeast rivers during this past year. This educational outreach is very helpful to inform the citizenry of the need to protect and enhance Maine's Atlantic salmon habitat.

Major Change for 2001

- Project SHARE has obtained a major grant from the Maine Atlantic Salmon Commission to hire a fulltime Director/Fundraiser under contract and a Technical Resources Coordinator under contract. Both are for one year with the opportunity to renew based on performance.

Prepared by; Matthew Scott, Executive Secretary
Project SHARE
Salmon Habitat And River Enhancement
RFD 1, Box 428
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e-mail: mscott@clinic.net

Quoddy Regional Land Trust

Report on Atlantic Salmon Conservation Activities

Quoddy Regional Land Trust

Alan Brooks, Executive Director

PO Box 49 Whiting ME 04691

tel/fax (207) 733-5509

The Quoddy Regional Land Trust (QRLT) has long been interested in assisting with the protection of Atlantic salmon habitat through conservation easements and fee acquisitions on the two rivers in its eastern Washington County service area, the Dennys and East Machias.

Its first success in this area came in 1995, with the donation to QRLT by the Dennys River Sportsmen's Club of a conservation easement protecting the Club's 40 acre headquarters property and over a mile of important salmon spawning and rearing habitat on the Dennys River.

Late in 1999, QRLT was awarded a grant of \$18,000 from the Atlantic Salmon Watersheds Collaborative, using federal funds granted by the National Fish and Wildlife Foundation through a project coordinated by the US Fish and Wildlife Service Gulf of Maine Project, to develop landowner contacts and pursue salmon habitat protection on these two rivers. Project work, to date, has resulted in a proposal for NFWF and Atlantic Salmon Commission funding to acquire a 30-acre parcel (part of which is currently an active gravel pit) which will protect roughly 1600 feet of critical salmon spawning and rearing habitat on the Dennys River along with a significant portion of an important aquifer adjacent to the river. Included in the proposal is the proposed donation of riparian corridor easements protecting an additional roughly 1850 feet of the Dennys River and 2800 feet along Cathance Stream, 1400 of which is critical salmon spawning and rearing habitat.

Very recently, QRLT has been awarded two other grants to allow it to continue its Atlantic salmon habitat protection work and extend it to the rest of Washington County's five salmon rivers: the Machias, Pleasant and Narraguagus.

The first grant, for \$10,500, using federal funds granted by the National Fish and Wildlife Foundation through a project coordinated by the US Fish and Wildlife Service Gulf of Maine Project, provides for QRLT to acquire and update land ownership data, including tax maps, landowner addresses, and parcel valuation information, in the five Downeast watersheds. This information, publicly available but scattered through a multiplicity of town and state offices, is basic to any effort to set land and easement acquisition priorities and to contact potential conservation donors or sellers within the designated watersheds.

The second grant, for \$60,000 provided through NFWF and the Maine Atlantic Salmon Commission, will allow QRLT to hire an Atlantic Salmon Land Protection Specialist to continue and extend the acquisition work already begun on a full-time, one year basis. While the major focus of this position involves negotiating land and easement acquisitions from willing landowners and seeking funding for these acquisitions, it also includes building partnerships with local watershed councils, the Maine Atlantic Salmon Commission, local municipalities and other organizations and agencies in order to create a strong network of conservation partners to fulfill the land conservation component of the State's Atlantic Salmon Conservation Plan.

At the time of writing, hiring is underway for the Atlantic Salmon Land Protection Specialist and for a contracted person to carry out the Land Ownership Data Base Project, with work on both projects expected to begin in January 2001.

Wild Blueberry Commission

INFORMATION FOR YEAR END PROGRESS REPORT TO MAINE'S ATLANTIC SALMON CONSERVATION PLAN

Wild Blueberry Commission

Contact: D. K. Bell

December 2000

I. ACTIVITY: Pesticide Use Target Crops

Comprehensive training sessions were provided to wild blueberry growers by University of Maine Cooperative Extension facility. These training sessions provide growers with the information to minimize their reliance on pesticides through the use of a knowledge based pest management approaches commonly referred to Integrated Pest Management (IPM) and Integrated Crop Management (ICM). IPM and ICM provide the basis for the Best Management Practices that growers use, according to the pest complexes they observe in their fields. This training provides growers with skills they need to apply pesticides in accordance with the Federal EPA label and State of Maine Board of Pesticide Control Regulations.

All of the activities below have benefited the five downeast watersheds and the Sheepscot watershed (we are not aware of growers in the Duck Trap watershed). Funding was provided to the University of Maine Cooperative Extension by Wild Blueberry growers through the Wild Blueberry Commission at levels exceeding the \$15,000 agreed to in Maine's Conservation Plan. Additionally, support for IPM/ICM programs provided to Wild Blueberry growers through the efforts of the Extension Blueberry Specialist exceed \$30,000.

Following is a summary of Wild Blueberry IPM/ICM educational sessions.

A Wild Blueberry pest management session was presented to growers at the State Agricultural trade show in January. The presentation reviewed Integrated Pest Management strategies in Wild Blueberries. Attendees received 1 pesticide recertification credit for this session.

The annual Spring Wild Blueberry Schools were held in four locations around the state in March. The Union, Ellsworth and Machias locations are in located in or are close to Atlantic salmon watershed and serve growers raising wild blueberries in throughout the watersheds. Presentations by Dr. David Yarborough, University of Maine Cooperative Extension educated growers on the updated recommendation included in the revised "Hexazinone Best Management System for Wild Blueberry Fields". This was a continuing education effort from 1999 when these BMP's were revised. The Board of Control also made a presentation to all growers on recent changes including an update on monitoring activities in Atlantic salmon watersheds and a reminder on the importance of proper and responsible use. Over 200 growers attended these sessions. Growers received two pesticide recertification credits for attendance. It should be noted updated IPM/ICM recommendations are also included in the Wild Blueberry Growers Guide and are mailed to over eight hundred on the grower list.

Integrated Crop Management Field Training Sessions

Three different Integrated Crop Management field sessions were conducted by Dr. David Yarborough and Dr. Frank Drummond in May and June. Each session was repeated in three

locations (Warren, Blue Hill, and Jonesboro, Maine) which were accessible to growers located in the Conservation Plan Watersheds. These session focused on specific pest identification and monitoring, the foundations of IPM/ICM. The first session was devoted to blight (disease) identification and control strategies, insect sweeping (for scouting) and identification, and calibration of granular herbicide applications. The second session stressed blight (disease) identification and control, insect sweeping and identification, and weed identification and management. The third session focused on blueberry maggot fly trapping, leaf and soil sampling (fertility), and weed identification and management. Dozens of growers attended. Attendees at each session received 1 pesticide recertification credit for each session.

Annual Field Day, Blueberry Hill Farm, Jonesboro

The annual field day was held in mid-July at the experimental farm in Jonesboro. Researchers provided updates on new research related to insect and weed control for IPM and ICM programs. Related practices were reviewed with over 100 growers. Attendees received two pesticide recertification credits for this session.

II. ACTIVITY: Wild Blueberry Integrated Crop Management Research

Based on the Wild Blueberry Commission's Wild Blueberry Advisory Committee recommendations, \$206,000 was expended on research to support the improvement of Integrated Crop Management practices. 2000 was the first year of the wild blueberry water needs study, an effort that will require \$550,000 over the life of the study. Once new ICM practices are proven, they are then taught to growers through Extension outreach activities. The funds for the researchers come from Maine's Wild Blueberry growers and a United States Department of Agriculture grant for wild lowbush blueberry research. In addition the University of Maine College of Natural Sciences, Forestry and Agriculture and the Maine Agricultural and Forestry Experiment Station contributed services and facilities toward ICM research in excess of \$230,000.

III. ACTIVITY: Hexazinone Monitoring by the University of Maine

The University of Maine continued its program that was initiated in 1993 to monitor well and surface waters under and adjacent to wild blueberry fields for hexazinone. Funding for this program has been provided at the recommendation of the Wild Blueberry Advisory Committee. In 2000 five drilled wells, three test wells, one dug well and four adjacent surface water samples taken each month from May through September. No significant changes in levels obtained compared to last year. Results range from non detect 13.6 ppb. Survey of grower/processors indicate average hexazinone use at 1.2 lb/a (maximum label rate is 2.7 lbs) and that use of granular formulation is 18% of applications. Twenty two percent of the land was treated with Terbacil or had no herbicide (each practice accounted for 11%). These data further substantiate that the current use patterns are not resulting in any increase in hexazinone levels in the groundwater.